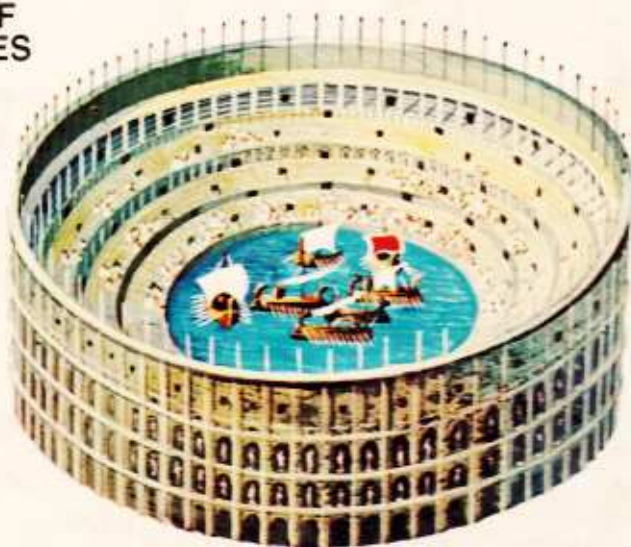


# GREAT CIVILISATIONS OF THE PAST

ODHAMS WORLD OF KNOWLEDGE SERIES













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## INTRODUCTION

Our early forefathers lived as hunters and food-gatherers. The search for herbs, nuts, wild fruit and berries, which ripened at different times in different places, kept them constantly on the move. So did the seasonal migrations of the wild animals on which they relied for meat. It was impossible for them to build permanent dwellings and live in one place. From time to time they might return to stay for a few days in some familiar cave, but more often they slept under the stars.

At various times in various parts of the world, some of them discovered how to keep flocks and herds, so that meat was always ready to hand. Others learned how to sow and reap grain, storing it to make bread. Such people could build villages and settle down. And, having settled, they found time for other things besides just getting enough to eat. Slowly they learned countless arts and crafts, and discovered ways of constructing roads, bridges, temples and palaces. They drew up systems of laws, founded religions, and groped their way towards the beginning of the sciences.

The solution they found to their problems varied widely from place to place, giving rise to many different and fascinating civilisations. Each made some special contribution to the way we live today.





Bust of Nefertiti,  
Egyptian queen of  
over 3300 years ago

## THE EGYPTIANS

In the north-east corner of Africa lies the land of Egypt. Most of it is hot, barren desert, but through it flows the mighty River Nile, which rises in wet lands far to the south. Regularly each year, swollen by heavy tropical rains near its source, the great river overflows its banks and spreads its waters over the parched Egyptian valley. The flood reaches Egypt in June, and by October it has gone down once more, leaving a layer of dark, fertile mud on either side of the river.

Very early farmers had no artificial fertilizers and knew little about the use of natural manure in agriculture; but in this rich mud, renewed year after year, they could grow abundant crops without ever exhausting the soil. In the surrounding desert people had to spread out thinly and keep on the move to find a bare living. Beside the Nile, where farming flourished, they lived together in large numbers and built permanent villages and towns. What is more,

growing food did not keep people occupied at all seasons, for seed sown in the October mud brought forth harvests within a few months. Everybody had some time to spare for other activities, and a few could devote all their energies to specialised work. So it came about that along the banks of the Nile, within a kind of oasis only a few miles wide but over 500 miles long, one of the greatest of ancient civilisations gradually grew up. It was firmly established more than 5000 years ago, and its greatness had hardly lessened by the time of the Greeks and Romans, nearly 3000 years later.

The Egyptians were well aware that their civilisation depended on the Nile. They worshipped it, and sang of the annual floods as "the waters of renewal, the waters of life." Indeed, Herodotus, the Greek historian who visited Egypt in the fifth century B.C., tells us that the people called their land "The Gift of the Nile."

However, the river brought problems as well as blessings. The most valuable property men possessed was their fields, and it was on the produce of those fields that they were taxed. But flooding often washed away boundary marks. So to keep property intact and levy taxes fairly, the Egyptians had to organise regular land surveys and replace





boundaries correctly. When the floods were very high, there was danger to homes and barns; when they were low, it would have been disastrous to let the water flow onward to the sea without watering as much of the land as possible. For these reasons it was necessary to raise dikes and cut irrigation canals. Finally, there were occasional years when the floods almost failed, greatly reducing the next year's crop yields. Means of storing food, and where possible preserving it, therefore had to be found as a safeguard against the risk of famine.

Surveying, flood control, irrigation, and large-scale food storage were tasks beyond the ability of small groups. They could be accomplished only by very large numbers of people working in co-operation and accepting some central authority to organise their efforts. It is no wonder, therefore, that by the time Egypt first figured in recorded history it was already organised into two kingdoms. In the north, around the Nile Delta, was the Kingdom of Lower Egypt, consisting of twenty small provinces, called nomes. Stretching southward along the Nile Valley, roughly to where the Aswan Dam now stands, was the Kingdom of Upper Egypt, made up of twenty-two nomes. Among the main towns of Lower Egypt were Sais and Memphis; among those of Upper Egypt were Thebes and Philae.

At some time around 2900 B.C. the two kingdoms were joined together by the semi-legendary King Menes, and after him no fewer than thirty dynasties of monarchs – the pharaohs – reigned over a united Egypt.

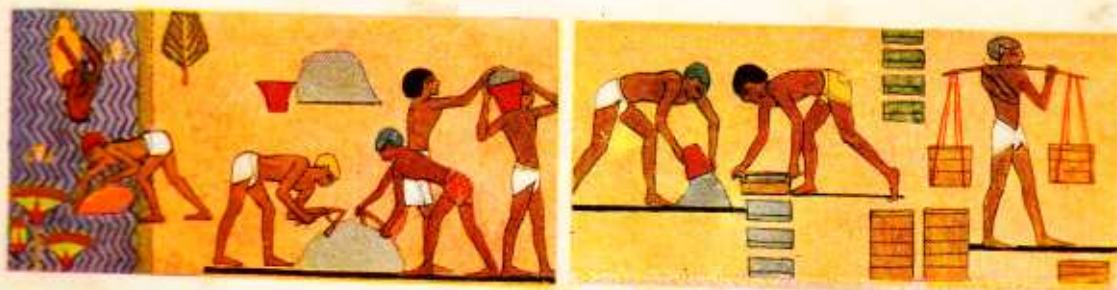
The last one was Queen Cleopatra, who committed suicide in 30 B.C. rather than let herself be captured by Roman conquerors.

The span of time between Menes and Cleopatra was three times as long as that between William the Conqueror and ourselves, so conditions in Egypt naturally did not remain exactly the same throughout. But the changes were surprisingly few, and on the whole they were slow to take place. So many things that are true about life under the early pharaohs are also true about life under the late ones.

We can judge how high the pharaohs stood above their subjects by the size of the pyramids that served as their tombs. The oldest one, built at Sakkarah soon after 2700 B.C., was designed by the world's first known architect, Imhotep, for the pharaoh Djoser. When new, it was almost certainly the largest building on earth. But within two centuries it was dwarfed by the three great pyramids near Gizeh, built to hold the remains of three of his successors. The Pyramid of King Khufu (or Cheops) is shown on page 15. Apart from a few chambers and passages it is solid. It consists of more than two million blocks of stone, averaging over two tons in weight, and covers an area of thirteen acres.

In an age when the only "machines" were rollers and levers, the time, effort and cost required to erect such a building are almost beyond imagining. Yet one circumstance explains why the Egyptians thought it worthwhile. To them the pharaoh was a god, who would live on in the afterworld to all eternity. His body, carefully embalmed and then

Moulding bricks from clay.







An Egyptian princess wearing traditional dress.

Gold clasp and beetle-shaped brooch (scarab) in turquoise.

A pharaoh bearing the royal insignia – crook and flail.

mummified, together with many of his prized possessions, must therefore be preserved as long and as safely as possible, no matter what the cost.

Yet in time the cost of building gigantic stone pyramids *did* become too great for the Egyptians. Many more pyramids were built after 2500 B.C., but they were all far smaller, and most of them were built of bricks. In all these royal tombs, great or small, the rich possessions of the pharaohs were buried with them. But neither the strength of the walls nor fear of the gods could keep robbers out forever. Over the centuries nearly every pyramid was plundered. Modern archaeologists have therefore found only a small fraction of those treasures of long ago. Yet even that fraction is beyond price, and tells us an immense amount about the people of ancient Egypt – how they were governed,

how they worked, what crafts they practised.

The pharaoh, besides being a god and guardian of the religion of the land, was the supreme judge, and commander of the army in time of war. In his palace, and also on his travels, he was attended by nobles, officials, guards, and a host of personal servants. Second in power to him was his right-hand man, responsible for hearing serious complaints, controlling the exchequer, receiving important foreign visitors and provincial governors, and ensuring that every royal command was carried out. The Old Testament reports how one pharaoh installed Joseph the Dreamer in this high office. "Pharaoh said unto Joseph . . . 'Thou shalt be over my house, and according unto thy word shall all my people be ruled: only in the throne will I be greater than thou.'"

Other nobles were provincial governors





Large ceremonial river barge.

and high-ranking army officers. More than once, and especially under Dynasties 7 to 10 (about 2100 to 2000 B.C.), these nobles seized a great deal of power from the pharaohs, making their own little provinces independent. But throughout much of Egypt's history they formed a strong and loyal pillar of government.

Below the nobles came the priests and the scribes. Being experts on the complicated religion of the land, and able to keep written records and accounts, they together formed

a kind of educated civil service. Though they often kept learned secrets to themselves, to heighten their own authority and prestige, they probably helped more than any other class to build up Egypt's civilisation.

By the time the great stone pyramids were built they had already invented one of the world's earliest forms of writing. They had also worked out a surprisingly accurate calendar, giving the length of the year as 365 days. It was probably the scribes who gave instructions for the layout of the giant royal tombs. If so, they must already have discovered some important mathematical rules, for the corners of each pyramid base are almost perfect right angles, and the sides face almost exactly to north, south, east and west. Later scribes discovered other useful rules of measurement and mathematics, and somewhere about 1600 B.C. the scribe Ahmes wrote some of them down. In the Rhind Papyrus, now in the British Museum, Ahmes states how to find the volume of a cylinder, and shows how to add up vulgar fractions.

The priests, firmly believing in a life after death, and teaching the importance of preserving human remains, encouraged the art of mummifying dead bodies. Embalmers who did this work had to remove internal organs with great care, and in doing so they learned a great deal about human anatomy. Indeed, writings of the period show that they knew more about it than did the doctors of Greece, Rome and medieval Europe.



Bed with head-rest and mattress of leather thongs. (Egyptian Museum, Turin.)





Artist's reconstruction of villa and garden of a wealthy Egyptian family.

Mummies had to be swathed in bandages, and there is scarcely any form of modern first-aid bandaging that was not practised in Egypt thousands of years ago. But while they knew much about the construction of the human body, the dwellers by the Nile learned little about how it works, or how to cure diseases. They believed that the intestines were the seat of the intellect, and of all the medicines they used only one or two, such as castor oil and senna, would be considered fit for use today.

Governed by pharaoh, nobles, priests and scribes were the ordinary members of the population: peasants, herdsman, merchants, soldiers, skilled workmen and labourers. Scholars have estimated that there were close to seven million of them – more than in modern Switzerland or Denmark.

These ordinary folk did not always follow the same occupation all their lives, or even all the year round. A man might be a soldier while he was young, or in times of war, a herdsman or labourer when he was older, or in times of peace. In the same way, the tens of thousands of men who worked on the great pyramids were not slaves forever engaged in cutting and hauling stone, nor were they free men, working for the love of work. Most of them were probably serfs, bound to work for their masters at all kinds of tasks. After the harvest and before the next flood there would be several months when there was little to do in the fields. Then many thousands of serfs would lay aside their sickles to begin forced work on the roads, the irrigation canals, or gigantic building projects.

Yet, though serfs and peasants worked



hard for little reward, they were unlikely to starve, for it was the responsibility of their lords, and of the pharaoh himself, to ensure their well-being. Even if one year's crops failed, enough of the previous year's grain would be stored in the royal granaries to provide bread for all. Compared with the nomadic herdsmen in nearby lands, the poorer people of Egypt were secure and prosperous.

The wealth of Egypt depended essentially on the soil, and it was on agriculture that most of the people spent most of their time. They grew barley and several varieties of wheat, scattering seed by hand and cutting the ripe grain with sickles shaped like new moons. Other important crops were vegetables, grapes, dates, figs and fodder crops. Among the domesticated animals were sheep, goats, cattle and asses. At about the time of the scribe Ahmes, the Hyksos people from lands to the north and east also introduced horses into Egypt, together with wheeled chariots. The marshlands of the Nile Delta provided wild fowl for the tables of the wealthy, and fish were caught in many parts of the river.

Until about 2500 B.C. the work of stonemasons and quarrymen must have been second in importance to that of the farmers. Limestone was to be found in many areas, sandstone and basalt in several others. However, the quarries that supplied the stone for the great pyramids were on the east side of

the Nile, while the pyramids themselves were built on the west side – perhaps because the direction where the sunlight died each day seemed the appropriate place to entomb a dead king. So once the huge blocks of stone had been cut from the mass of natural rock, they had to be ferried across the river to the building sites. This would have been an impossible task without a fairly big number of stout rafts or boats. It is therefore not surprising that King Snefru, builder of one of the earliest pyramids, was also famous for developing ship-building and navigation.

From then onward the Nile became the greatest of Egypt's highways, carrying the bulk of all traffic. The craft on its waters ranged from small, slender sailing vessels to giant rafts and ceremonial barges rowed by forty men. But, strangely enough, the Egyptians seldom ventured far to sea and never became good seamen. Throughout most of their history they relied on the mariners of Crete, Asia Minor or Phoenicia to carry overseas imports and exports.

For land transport the main beasts of burden were human beings – perhaps women more than men. Oxen and asses were kept mainly for farm work; and when horses were introduced they were not employed to carry travellers or pull loads, but to draw the chariots used in warfare and hunting.

Pottery-making was an ancient craft even before civilisation took root beside the Nile, but the early Egyptians raised it to a higher

Sowing and harvesting in Nile Valley.







Fragment of hieroglyphic writing.

level than almost anywhere else in the world of their time. Their finished vessels were less coarse than those of most other lands, and often brilliantly glazed in blue. Even today countless vases, pots, figurines and tiles remain to bear witness to their skill. Egyptian craftsmen also knew how to make glass and mould it to shape while it was still hot and pliable, but they never discovered the art of glass-blowing. Home-grown flax was woven into fine linen cloth, while wood, often from overseas, was used to build boats and to make excellent carvings and fine furniture. An Egyptian chair of about 1500 B.C. is shown on page 16. In discussing seating and health, a modern medical man recently wrote this about it: "The back slopes at about the correct angle and the design is, in general, better than anything produced in Europe for well over 2000 years."

The craftsmen, who handed down their skills from generation to generation, were bond-men, like the serfs who worked on farms and building projects. They often carried on their trades in fairly large and highly organised workshops, with each man specialising in one stage of the manufacturing process. In charge was an overseer who kept records and accounts, and saw to the selling of the finished goods.

Payment was made in corn, barley-bread and beer, for money was unknown. Trade was carried on by barter, and not until about

Below: Wooden pen case, with inkwells, reed pens, and pestle and mortar for the mixing of ink.







Inside the Temple of Abu-Simbel

1000 B.C. did the Egyptians begin to use precious metals to fix the values of things. Even then, gold and silver were not used as currency, and it was not until after the Persians conquered the land in 525 B.C. that coins began to circulate.

The men of Egypt usually dressed in a white robe belted at the waist or in a loin-cloth. Sometimes they wore sandals, but more often they went barefoot, even the nobles. Their hair was generally short and their faces clean shaven, though the nobility sometimes favoured elaborate wigs, and the pharaoh himself wore a short artificial beard which was of religious significance. Women, on the other hand, especially those of the nobility, took a great deal of trouble over their personal appearance. Toilet articles compose a large proportion of archaeological finds in Egypt, and we can imagine the wife of a noble spending long hours before a

bronze mirror with jars and bottles of cosmetics, applying them with spoons. She would also darken her eyelids with kohl, and redden her cheeks and lips with ochre. Her perfumes would be made from cinnamon, myrrh and bitter almonds. If she lived before about 1300 B.C. her main garment, like that of her husband, would be a white robe. After that time more elaborate costumes became fairly fashionable for both sexes.

Wealthy men, as well as wealthy women, were very fond of jewellery – rings, pendants, earrings, brooches, necklaces, and bracelets – and even a quite humble scribe or merchant would have his own personal seal of gold or silver. This taste for gold adornments, which began very early in Egypt, eventually proved important to the development of tools and weapons.

Gold was to be found in parts of Egypt in an almost pure state, and, being a very soft metal, it was fairly easy to shape into attractive jewellery. When, by some accident, people discovered that another metal – copper – could be extracted from its ores by means of heat, they probably mistook it for an unusually hard, reddish form of gold. Early goldsmiths therefore took pains to learn how to shape and use it. But in one or two areas not far from the Nile there were deposits of ore containing tin mixed with copper. When this ore was heated it yielded the tough, hard alloy called bronze, which was good for making all kinds of weapons and cutting tools. So useful was it that in later times tin from distant lands was often blended with local copper to produce bronze.

The Egyptians entered the Bronze Age very early in their history. At various stages they used bronze to make shields, saws, auger-bits, and wheel-rims, but weapons of bronze, such as swords and scimitars, were not really common until about 1600 B.C. After that several more centuries had to pass by before a knowledge of iron-working reached Egypt from the north-east.



Sound agriculture and the ability to make good tools provided a firm foundation for Egypt's civilisation. Sound government, organised religion, and the art of writing enabled men to build on that foundation. Though archaeologists have learned much about the system of government and the nobles who carried it into effect, they have discovered little about the actual laws of the land. So far as is known, they were never written down, and it seems that each lawsuit was settled on its own merits, by tribunals of six or eight judges sitting at the doors of the temples.

The Egyptians were a deeply religious

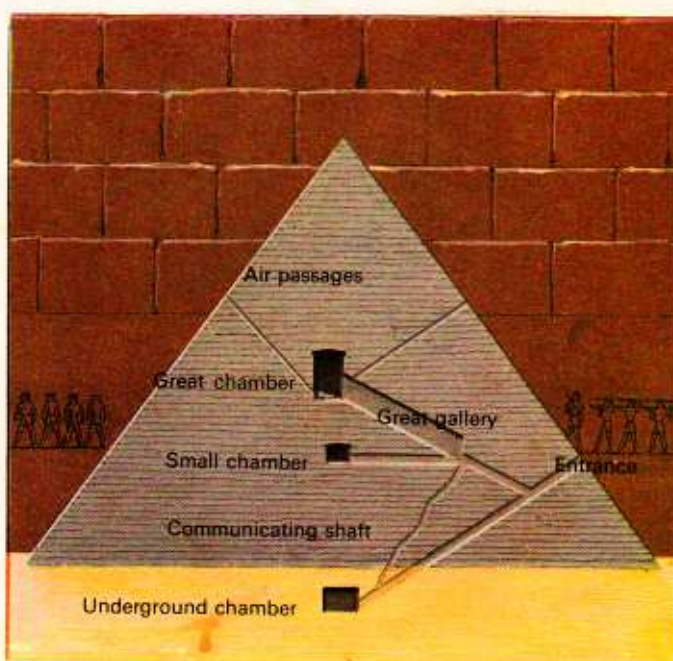
underworld, his wife and sister Isis, and their son Horus.

To ensure that rituals would always be properly observed and temple accounts and records properly kept, the priests needed some system of writing. The system they first devised, and the kind of Egyptian writing most familiar to us, is called hieroglyphic, and consists of many little drawings. At first each drawing represented some object, such as a sickle or an ass, but later on many came to stand for individual actions, such as walking, speaking, or praying. Still later, other drawings came to stand for sounds, as our letters K, L or S do.



The Sphinx at Gizeh. In background is the Great Pyramid of King Khufu (or Cheops), a cut-through of which appears below.

people, and steeped in tradition. So while they were willing to accept new gods, new rituals, and new beliefs, they were unwilling to give up old ones. Over the centuries, therefore, their religions became so complicated that only a few experts can now hope to understand them. First there were a host of local gods, inherited from early tribes, whose worship was bound up with the fertility of fields and flocks. Some had human forms, others were pictured as jackals, crocodiles, ibises, vultures, and other creatures. Gods specially revered in particular cities included Ptah (at Memphis), Amon (at Thebes), Atum-Re (at Heliopolis), and so on. Finally, the Sun-god, Atum-Re of Heliopolis, became the chief deity of the official religion of all Egypt, while other important state gods were Osiris, who was king of the







Detail from back of Tutankhamen's tomb. Inlaid with gems and plated with gold, it shows the young king seated.

When modern Europeans first came across hieroglyphic writing, they could not make head nor tail of it, and no wonder. The language of the ancient Egyptians had long since ceased to be spoken, and the little drawings were used in three or four different ways. But during Napoleon's Egyptian campaign, French soldiers found a stone called the Rosetta Stone, which carried the same inscription in hieroglyphs and in Greek. Some years later a Frenchman named Champollion noticed that it contained the names of two pharaohs – Ptolemy and Cleopatra. He also noticed that where the same consonant sounds (P, T and L) occurred in both names, the same little picture occurred in the hieroglyphic inscription. By following up these and other clues, he and others eventually deciphered the whole hieroglyphic script. So in time, as more and more ancient writings came to light, scholars were able to discover a vast amount about the details of the history of Egypt.

In addition to inscriptions on stone, and writings on papyrus made from sliced and peeled river reeds, we can also learn much from the Egyptian sculptures, paintings and other articles that are constantly being found. But only once have modern men found the untouched tomb of a pharaoh. That was in 1922, when the British archaeologist, Howard Carter, and his patron, Lord Carnarvon, opened the tomb of the boy-king Tutankhamen, which had remained unopened for 3300 years. The young pharaoh's body was enclosed in three coffins, the innermost one being of solid gold. Two life-size statues guarded the actual burial chamber, and in nearby antechambers were state chariots, vases, lamps, furniture and perfume boxes. For millions of people who read of the discovery of the tomb in the newspapers, ancient Egypt suddenly seemed no further away than yesterday.



Three Egyptian deities: Osiris, Isis and Horus.



## THE SUMERIANS



Sumerian lady of about 2600 B.C.

A thousand miles due east of the Nile Delta is the southern part of Mesopotamia, the country we now call Iraq. There two great rivers, the Tigris and Euphrates, join and flow southward into the Persian Gulf. Before the Egyptians built the great pyramids, and for many centuries afterwards, these rivers flowed separately all the way to the sea, and the Persian Gulf extended sixty miles farther north than it does today. The change has come about because both rivers not only flood from time to time but also change their courses; and in their lower reaches they deposit silt, which gradually builds up new land.

Here, then, was a country similar in climate to Egypt, and having similar flooding, though the flooding was less predictable. Like Egypt, it was a land of opportunity for early farmers who were willing to co-operate to make good use of it. The first people to do so were the Sumerians, who had settled there by about 4000 B.C. Where they came from remains a mystery. Some scholars believe they migrated from the north, from as far

away as central Asia; others think they originated from some mountainous part of India. All we know for certain is that they were rather short, stocky, dark-haired people with slightly slanting eyes, and that they spoke a language very different from any spoken by the various Semitic peoples who later settled higher up the two great river valleys.

Faced with large-scale works of irrigation and flood control, and with the added problem of draining the marshy land around the river mouths, the Sumerians needed sound government and social organisation no less than the Egyptians. As more and more land was brought under cultivation populations increased, and several villages grew to the

Sumerian nobleman with symbols of authority.







Ox-drawn plough combined with primitive seed-drill.

size of small towns and cities. These became the main units of government, and in time the whole of Sumer – roughly the size of Wales – was made up of city states.

Each consisted of a town or city together with an area of farmland and a number of villages around it. Every city had its own god, who was regarded as its true owner. The earthly ruler, called the *ishak*, considered himself a kind of tenant, to whom the city god had only leased the state. He therefore owed his god the duty of seeing that the land was well used, crops carefully harvested, cattle properly tended, and irrigation canals well maintained.

Under his supervision, farm-workers kept the silt-rich soil well prepared. When sowing, they used a kind of primitive seed-drill, made by fixing a funnel to a plough and letting seed trickle through as the oxen ploughed the furrows. At harvest time they threshed the ripe barley with wooden staves edged with stone teeth, separating the grain and chopping the straw. Next in importance to barley came date palms. Their fruit was good for eating and fermenting into wine, and the kernels yielded oil; the wood was useful for making boats, doors and furniture, while the fibres provided raw material for mats, ropes and baskets. Fish in great abundance could be caught in the rivers and birds hunted in the marshes.

Sumerian society was made up of three classes. Highest stood the officials, priests and warriors. Next came the middle classes, composed of merchants, farmers and craftsmen. Lowest came the slaves, who did all the humblest and most wearying tasks. In the cities – built on mounds as a safeguard against floods – the richest citizens occupied brick-built villas where all the rooms opened on to a central courtyard. The homes of poorer people were made of long reeds, bent over to form an arch and tied at the top; the outside was plastered with mud and straw, which hardened in the hot sun.

Rulers naturally tried to extend the area of cultivated land around their towns, to increase the food supply, but this could not always be done without upsetting the ambitions of neighbouring states. So wars between cities were fairly common, and at various times some prospered while others declined. Between about 2850 and 2450 B.C. the cities of Erech, Lagash and Ur each became dominant in turn, and their rulers all founded dynasties of kings. For them, luxurious palaces were built, with entrances watched by concealed guards and gates so narrow that only one man could pass through at a time.

As kings extended their power over wider



Two inscribed clay tablets – an inventory for tax purposes and a tally of goods.



areas, so did gods. Enlil, once worshipped only in Nippur, became god of land and air, and the supreme deity of all Sumer. Next came Ea, god of waters, who was formerly worshipped only in Eridu, and another promoted local deity, Anu, god of the sky.

The Sumerians, who may have come from a mountainous country, believed that gods must be worshipped on high places. Since there were no natural heights in the flat plains of southern Mesopotamia, men built their own "Hills of Heaven." These brick-built constructions, called ziggurats, were huge towers made up of three deep, square platforms, each a little smaller than the one below. Capping the highest platform was the place of worship and sacrifice. Access was by ramps, up which priests and people would march in procession, on religious occasions or when they had to take refuge from floods or invaders.

Sumerian priests and temples were concerned with many things beside religion. In

the temple precincts were courts of justice where priests served as judges. There were also schools, where they taught the arts of reading, writing and calculating to youths training as scribes. It was around the temples, too, that astrology was studied, and although those who studied it did so largely as a means of foretelling the future, they amassed a great deal of genuine knowledge. They worked out a calendar, based on the changes of the moon, in which the year was composed of twelve thirty-day months. This, of course, did not match up with the somewhat longer year indicated by the sun's changing position in the heavens. However, Sumerian astrologers solved the problem by making every sixth year last thirteen months. They also knew of seven heavenly bodies that change their positions against the background of fixed stars: sun, moon, Mercury, Venus, Mars, Jupiter and Saturn. It may be that this knowledge of simple astronomy gave rise to the seven-day week.

Sumerian four-wheeled cart drawn by asses.







Two gods of Sumer.

Many buildings of ancient Egypt are still intact. Those of Sumer and other Mesopotamian civilisations have long since crumbled into shapeless mounds of dust. This is because southern Mesopotamia had practically no local stone, and had to depend on bricks. The Sumerians knew how to make durable baked bricks, but the cost of fuel for baking all the bricks for a ziggurat would have been colossal. Most were therefore simply made of clay and left to harden in the sun. They could stand up to rain for a few years, before they crumbled. To ensure that temples and palaces endured longer, builders covered the outer walls with thin baked bricks or glazed tiles. But over the centuries, as these began to peel off, rain got at the soft bricks underneath and bit by bit the whole buildings slowly collapsed into ruins.

Yet excavation of ruins has revealed many fine examples of Sumerian craftsmanship, including a mask of gold, much jewellery, representations of the first wheeled vehicles, sculpture done in imported stone, and a harp that once belonged to a queen. Further, many of the business contracts and trading accounts of the Sumerians still remain to us, for they were written on soft clay which was later baked to become as hard as pottery. The first written signs stood for things, but later some denoted sounds. In the past century many Sumerian writings have been found and deciphered, and it is from them that scholars have learnt much about events in Sumer up to about 2000 B.C. By then, having suffered several foreign invasions, the Sumerians were losing their identity and becoming merged into the other Mesopotamian civilisations.



Layout of temple precincts.



An artist's reconstruction of the magnificent Hanging Gardens of Babylon.



## THE BABYLONIANS AND ASSYRIANS

The Sumerians did not long remain the only dwellers in Mesopotamia. The plain around the Tigris and the Euphrates stretched four or five hundred miles to the north-east of the lands where they lived – deep into Syria and almost as far as Asia Minor. If properly irrigated, much of it could be made as fertile as Sumer itself, and soon other peoples began to settle there.

Only a few specialist historians can now sort out who all these people were and when they arrived. But it is clear that many were Semitic peoples. This does not mean that

they belonged to a particular race; it only means that they spoke one of the family of similar languages which are called Semitic tongues, such as Hebrew, Arabic, Akkadian, and Phoenician.

First among the Semitic arrivals were the Akkadians, who settled just to the north of the Sumerians. These people quickly adopted the main features of Sumerian civilisation and in some ways improved on it, especially in sculpture. Between about 2450 and 2270 B.C. they became powerful enough to build up a considerable empire, which



stretched from Syria to the Persian Gulf, for they even absorbed Sumer. Then the Akkadians themselves were weakened by wars with savage Gutium invaders from the mountains of Asia Minor. It took a century to subdue these men from the mountains, but then both Sumer and Akkad had over three hundred years of renewed prosperity.

During those prosperous years, and for a long time afterwards, other waves of new peoples swept into Mesopotamia. Besides Semitic peoples – Amorites, Arameans and Chaldeans – they included certain others such as Hittites from Asia Minor and Kassites from other mountainous lands to the north-east. After many wars and skirmishes this mixture of peoples eventually settled down to create two nations, Babylonia and Assyria. In both the languages were Semitic, and in both the men were mainly different in appearance from the Sumerians: swarthy complexioned, dark haired, with short square beards, and usually dressed in ground-length linen tunics and sandals.

For much of the period between the 19th and the 6th centuries B.C. the two powerful states of Babylonia and Assyria existed side by side, with first one then the other becoming supreme. The Babylonians unified the southern part of Mesopotamia – formerly ruled by the Sumerians and Akkadians – while the Assyrians occupied the northern part, building their chief cities along the upper reaches of the River Tigris. Both nations, but more especially the Babylonians, owed much to Sumerian civilisation, but they both carried it further, and added new ingredients of their own to it.

The main cities of Sumer and Akkad held their importance throughout Babylonian times, and indeed the great ziggurat of ancient Ur was restored by Nabonidus, the very last Babylonian king. Yet the Babylonians chose as their capital a mere village called Bab-ili, meaning Gate of God, on the banks of the Euphrates. Unimportant though it then seemed, it stood in a commanding position on the trade routes leading north

towards Asia Minor and westward to the Mediterranean. Since foreign trade was very important to all the civilisations of Mesopotamia, Bab-ili flourished, and soon grew to be the city known as Babylon, the greatest in all the land.

The Babylonians believed that their fine capital was founded by the god Marduk. Perhaps for that reason Marduk, later called Baal, became the supreme deity, inheriting all the glories of the old Sumerian god Enlil, thus being worshipped as creator of the world. But the Babylonians had many other gods too, and their religion was also closely tied up with interpreting all kinds of omens, and foretelling men's destinies from the positions of the stars and planets when they were born.

Assyrian lion weight,  
Babylonian duck weight,  
and merchant calculating  
with abacus.







The ziggurat of Ur, as it was reconstructed by Nabonidus of Babylonia, about 545 B.C.

The greatest ruler of Babylonia was the sixth king, Hammurabi, who reigned from about 1790 to 1750 B.C. In addition to leading his armies to victory and making his kingdom secure from invaders, he built new temples and restored old ones. He also planned new canals, and saw to it that existing ones were kept in good repair. He is best known, however, for his code of laws, which was inscribed on an upright stone slab (or *stela*) and set up in a public place so that people could consult it. At the top of the stela is a bas relief showing the king standing before the sun god, Shamash. Below are many columns of wedge-shaped script, called cuneiform, detailing the laws of the land on marriage and divorce, slavery, theft, wages, flood damage, and so on.

Most of these 282 laws were not of Hammurabi's own invention, but consisted of long-standing customs, many of which dated far back into Sumerian times. Yet only a ruler with a strong sense of public duty could have collected them and welded them into a clear legal system. In the prologue to the

laws Hammurabi expressed pride in serving his subjects: "Hammurabi, called by Enlil am I; the one who makes plenty abound, who revived Uruk, who brought water in abundance to its people, who brings joy to Borsippa, who stores up grain for the mighty Urash, the saviour of his people from distress . . . I established law and justice in the language of the land, thereby promoting the welfare of the people."

Not all Hammurabi's people were prosperous and contented, for they included many slaves. Some were prisoners of war, others were slaves because their parents had been so before them; yet others were unfortunate children sold into slavery as a means of repaying their parents' debts. Unless these people worked as servants in



Babylonian lady (from an ivory in the Louvre, Paris) and an Assyrian king (from bas relief in British Museum).





Assyrian sculpture of a winged bull with human head, 8th century B.C. (Louvre, Paris).

wealthy homes, they lived mainly in huts, of one room, made of dried mud. Many of the poorer freemen probably did the same.

But even if the city of Babylon had its share of slums in Hammurabi's day, it must still have presented a wonderful spectacle. Within its massive city walls were parks and gardens, the spacious villas of wealthy merchants, and impressive temples which, though built mainly of sun-dried bricks, were sheathed in bright enamelled tiles and adorned with bas reliefs. Higher than any other building rose a giant ziggurat – the Tower of Babel – surmounted by a temple dedicated to Marduk.

At the height of Babylonian civilisation, water was brought to the countryside by means of an elaborate system of canals and basins, some thirty feet deep, in which the flood waters of the Euphrates could be stored. To raise the water from the ditches to the fields, slaves and peasants used the shaduf – a pivoted pole with a bucket hung from one end and a counter-weight from the other. Thus irrigated, the land yielded

cereals, fruit and vegetables in abundance; and although meat was often scarce and costly, fish were to be taken in plenty from the rivers.

When it came to luxury goods, the Babylonians could not so easily supply their own wants. Neither could their neighbours, the Assyrians. Gold for the vessels used in religious rituals had to be obtained from Asia Minor; spices had to be brought in from India; silk to clothe the wealthy could come only from China. Even wood suitable for building, such as the cedar of Lebanon, had to be purchased from abroad. For some of these needs the Babylonians relied on the seafaring traders of Phoenicia; but they also had merchants of their own, who were ready to trek far across deserts with caravans of camels, or lead trains of heavily laden asses along remote mountain paths.

First, to ensure that neither they nor their customers received short measure, they took to using scales and standard weights, such as the talent (probably 45 pounds) and the shekel (probably about a third of an ounce).



Next, in order to tempt all kinds of people to part with all kinds of goods, they had to carry with them something that almost everybody was sure to want. At first they took barley, but later they used bars of silver, stamped to show their exact weight. These were probably the world's first form of money.

Equally important, merchants had to be good at calculating and keeping records of their transactions. They kept records on tablets of clay, just as the Sumerians had done before them, though they wrote in a different language and more frequently used wedge-shaped signs to denote syllables. But calculating was not so easy. This was because the Babylonian method of writing down numbers was extremely complicated – so complicated that the same two signs placed side by side could mean either 10 times 10 or 60 times 60.

Merchants therefore used the abacus for calculating. In its simplest form this consists of several grooves, deep enough to hold small pebbles, drawn in sand with the finger. Every pebble placed in the right hand groove stands for one; every pebble in the next groove to the left stands for ten; every pebble

in the following groove to the left stands for a hundred, and so on. With this device, merchants learned to add and subtract very quickly. In modern Japan and Russia the abacus – usually in the form of a frame holding several stiff wires each fitted with nine sliding beads – is still often used in schools and even in banks.

Babylonian merchants also had tables showing the squares of numbers. With two rules that can now be stated as simple algebraic equations they could use these tables for rapid multiplication and division.

The priestly astrologers of Babylon were concerned with measurements of a different kind. They wanted to note the exact positions of stars and planets in the night sky, and for that they had to measure angles. To fix a scale of measurement they divided the circle in 360 degrees as we have done ever since. Among the factors of 360 are 60 and 10, and these numbers played a particularly important part in Babylonian arithmetic. Today our arithmetic, like the arithmetic of ancient Egypt, relies on a base of ten, which means that every time we add a zero to a number we multiply it by ten. But the old

Two Babylonian astrologers observing an eclipse. They kept an accurate account of all such events in the last few centuries of Babylonian history.







Babylonian "map" of 7th century B.C., showing world as disc with Babylon at the centre. (British Museum).

Babylonian sixty still appears in the way we divide hours into minutes or minutes into seconds.

The first period of Babylonia's greatness ended in 1595 B.C., when the land was invaded and gradually taken over by Kassites from the eastern hills – men who had formerly been shepherds and horse-breeders. After that, except for a few short periods when national heroes succeeded in re-establishing independence, the Babylonians were under foreign domination for nearly a thousand years. For much of that time their masters were the Assyrians, who ruthlessly stamped out every attempt at rebellion.

From about 900 B.C. onward, under a series of warlike kings, Assyria began to build a great empire, which eventually stretched from the Tigris to the Nile – for even mighty Egypt was for a time subdued. In 729 Tiglath-pileser III, after a fierce campaign in southern Mesopotamia, proclaimed himself king of Babylon. Twenty-five years later the Babylonians rebelled and placed a man of their own nation on the throne. But Sennacherib, the new Assyrian king, punished them by destroying many of the buildings of Babylon, and flooding part of the city. However, in 612 B.C. the Medes from the north, with the help of Babylonian rebels,

made war against Assyria, defeated it, and destroyed its capital, Nineveh. Babylonia was freed once more, and Assyrian power destroyed forever.

It would be wrong to imagine that in the long years between 1595 and 612 B.C. the Babylonians' great contributions to civilisation were all forgotten. Many of their ideas, inventions and customs were kept alive, if only because they were of use to the conquerors. Indeed, Assyrian civilisation became very much like the Babylonian, in trading methods, in architecture, in arithmetic, and in the methods of keeping written records. In some ways, too, conquest by Kassites and Assyrians actually added to the richness of Babylonian life, for it was during the period of foreign occupation that horses, war chariots and a knowledge of iron-working first came into the country. What is more, the sheer size of the Assyrian empire put Babylon in closer touch with other civilised lands.

So, after 612 B.C., Babylonia was ready to begin a new era of greatness. During the reign of King Nebuchadnezzar II (605–561 B.C.) the ziggurat of Babylon was restored and its terraces planted with trees and shrubs, thus forming the famous "Hanging Gardens of Babylon," one of the wonders of the ancient world. Astrology and astronomy flourished once more, with priests keeping records of all eclipses of the moon and noting the precise time of the spring and summer equinoxes each year. For a short time Babylonia even built up its own empire, which reached from conquered Assyria to the Mediterranean coast.

But in 539 B.C. Cyrus, King of Persia and Media, captured Babylon and seized its empire. Never again was Babylonia a powerful state. Yet as later conquerors came to Mesopotamia they one by one inherited its various contributions to civilisation.

Babylonia taught the ancient Greeks many of the elements of mathematics and philosophy. To the medieval Arabs it bequeathed its knowledge of the heavens.



## THE PHOENICIANS

While the civilisations of Egypt and of Mesopotamia were at their height, a strip of land on the eastern shore of the Mediterranean was steadily growing in importance. It lay in the lands we now call Syria and Lebanon, with mountains to the east and the sea to the west, and the people who lived there were the Phoenicians. Because so many different tribes and peoples settled in and around the area at various times it seems likely that the Phoenicians were of mixed race, but the language they all spoke was a Semitic one.

Among their chief cities, all on the coast, were Tyre, Sidon, Byblos, Simyra, Beirut and Ugarit. We know that some of these were very ancient, for at Byblos archaeologists have dug up remains dating back to 3000 B.C., and by 2500 B.C. Egyptian sculptors were making bas reliefs showing the ships of one or two of these ports. Although Phoenician ports and ships were already in action at that early date, they

were for many years overshadowed by the sea-power of the island of Crete. But from about 1500 B.C. onward Crete's power began to wane, and for the next thousand years the Phoenicians became by far the greatest seafarers in the world.

The chief sea powers of recent centuries, such as Spain, Holland and Britain, have all been strong, united countries, but that was never so with Phoenicia. Throughout the greater part of its history it consisted of separately-ruled cities, each with its own king and council of elders, united in little or nothing except their way of life. The mountains to the east of Phoenicia formed a natural barrier against the warlike tribes of the desert, but they could not keep out the disciplined armies of Assyria and Babylon, nor could they stave off a determined attack by the Egyptians. So it happened that various Phoenician cities were sometimes completely conquered by these nations, and quite often had to pay tribute to them. In

Artist's impression of small Phoenician fleet off coast of West Africa.





early times, between 1350 and 1300 B.C., the whole area was under the control of Egypt; in the 8th century B.C. Tiglath-pileser III of Assyria levied tribute from Byblos and Tyre; and two centuries later Nebuchadnezzar II of Babylon took almost all Phoenicia, though his thirteen-year siege of Tyre ended in failure. In fact Phoenicia's longest period of independence, beginning at the time of Hiram, King of Tyre, lasted only from about 1000 to 750 B.C.

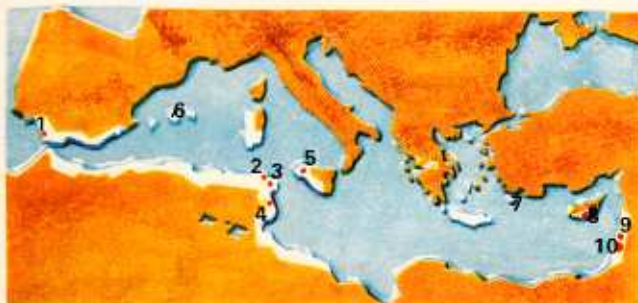
Yet despite all their political misfortunes, the Phoenicians prospered throughout, for with their unrivalled knowledge of ship-building, navigation and bargaining they held the key to world trade. Foreign kings might call themselves masters, but when they needed goods from overseas they had to obtain them from Phoenician merchants, and pay the full price asked. As a result the two main ports of Phoenicia, Tyre and Sidon, became famous everywhere.

To understand what they meant to the ancient world we have only to read what the Old Testament prophet Ezekiel said about Tyre. "Thou art situate at the entry of the sea, a merchant of the people for many isles. Thy builders have made all thy ship boards of fir trees of Senir: they have taken cedars from Lebanon to make masts for thee. Of the oaks of Bashan have they made thine oars. Fine linen with brodered work from Egypt was that which thou spreadest forth to be thy sail." Ezekiel goes on to list many of the distant lands and cities that the merchants of Tyre visited by sea or by land, and to talk of

some of the goods they bought and sold: silver, iron, tin, lead, vessels of brass, horses, mules, ivory, ebony, emeralds, linen, coral, purple dye, wheat, oil, wine, wool, clothes, chariots, rams, goats, spices, gold, and the "persons of men" – meaning slaves.

On the whole the Phoenicians seem to have paid less attention to religion than most other peoples of their time. It is true they had national deities, such as El, "the father of years," Shepesh, the sun goddess, and Ashera, who ruled the sea, but for the most part they were content to worship the gods of their cities. These they seldom even troubled to name, simply calling each one *Baal*, or "master." Further, they were sometimes crude in their dealings with other people. When they could not barter at a profit they were liable to seize unwilling buyers or reluctant sellers and make them slaves. At sea they were not averse to piracy, and would sometimes capture a foreign ship, steal the cargo, and take the whole crew prisoner.

Of the men who stayed at home, many were excellent farmers, terracing the steep slopes of the hills, irrigating them, and growing good crops of vegetables, fruits and olives. The best artisans in the land were the ship-builders, the glass-workers of Sidon (whose products rivalled those of Egypt in beauty), the dyers of Tyre, and the weavers of fine fabrics in most Phoenician cities. The purple dye which the Tyrians made from a species of shellfish that lived in the warm waters off their coast was famed throughout



Phoenician cities, colonies and trading settlements

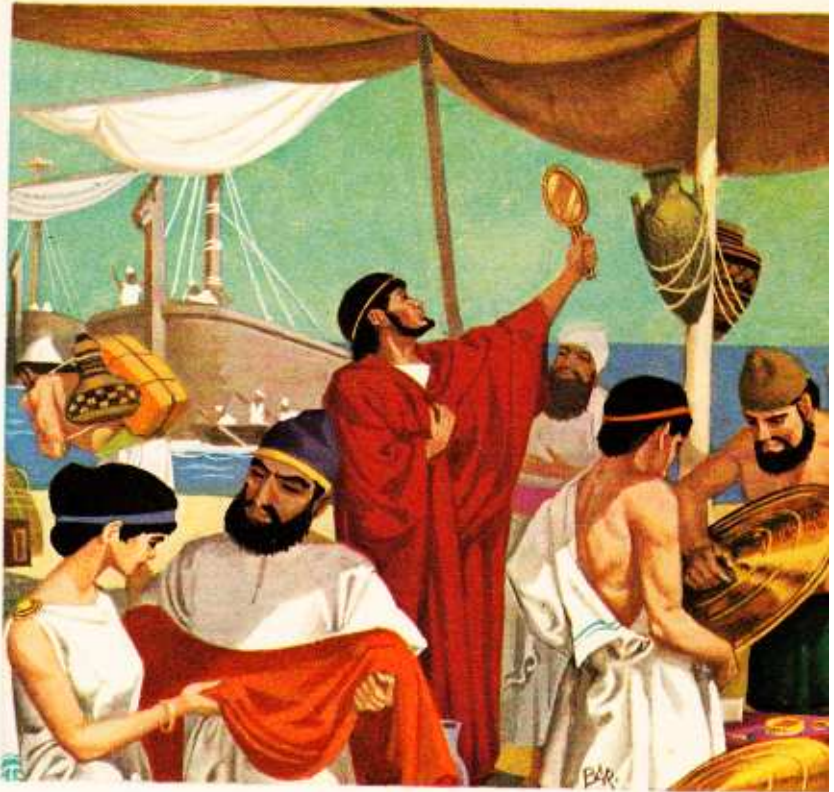
1. Cadiz
2. Utica
3. Carthage
4. Leptis
5. Palermo
6. Balearic islands
7. Rhodes
8. Amathus
9. Tyre
10. Sidon





Below: Phoenician merchants displaying their wares to inhabitants of a Greek city.

Left: Phoenician gold dish, with statuettes in bronze and ivory, against a background of Phoenician cloth.



the known world. So expensive was the purple cloth of Phoenicia that only the very wealthy could afford to buy it, and in time purple became the very symbol of riches and power.

Yet the people who made the greatest contribution to the progress of mankind were not the craftsmen of Phoenicia but her mariner-merchants. They became the first men to sail through the Strait of Gibraltar (formerly called the Pillars of Hercules) and out into the Atlantic. We know nothing of the navigational instruments they used, or even whether they had any, but it is quite certain that whenever they were out of sight of land, and beyond the range of sea-birds such as gulls, they had to rely on a knowledge of the heavens to find their way. And on their travels they learned much about astronomy

that the stay-at-home priests of Egypt and Babylon could never have discovered for themselves.

We know that Phoenician ships fairly often visited Cornwall for tin. We also know that they occasionally sailed far down the Atlantic coast of Africa for spices. Covering these great distances from north to south, they were bound to notice that the Pole Star appears higher and higher overhead as one sails farther north, and sinks lower and lower towards the horizon as one sails southward towards the equator. Ships' pilots, whose job it was to seek every possible new aid to navigation, would also notice that as they sailed southward from the Pillars of Hercules the noonday sun cast shorter and shorter shadows; as they sailed northward the sun cast longer and longer ones.





The oldest alphabet of all.

From these clues they learned to tell a ship's latitude, either by night or by day. The same clues, when carefully studied, also provided the most convincing evidence then available that the world is round and not flat. That knowledge eventually reached the philosophers of ancient Greece and the Arabs of the Middle Ages.

We may compare the travels of the Phoenicians from port to port with the travel of bees from flower to flower. Bees visit flowers for their own benefit, to obtain nectar; but in doing so they unconsciously pollinate the flowers. The Phoenicians visited distant lands only to buy and sell; yet in doing so they carried useful ideas, as well as useful goods, wherever they went. They learned many things from the brilliant civilisations of Egypt and Mesopotamia, and quickly carried them to the colonies such as Carthage, Marseilles, and Cadiz which they founded. And it must be remembered that these colonies stood on the fringes of barbaric north-west Africa and western Europe, where most people were still living the lives of New Stone Age shepherds or farmers.

But one idea which they spread far and

wide originated in their own land – the idea of an alphabet. The peoples of Egypt and Mesopotamia had already learned to use written signs to stand for syllables and even for individual consonants, but they also used the same or similar signs to stand for objects or actions. What was new about the Phoenician alphabet was that each sign denoted one consonant-sound and nothing else. There were only twenty-two signs all told, so the task of learning to read and write no longer demanded the long years of concentrated study as it did for the scribes of Egypt and Babylon.

In the Phoenician language, as in other Semitic tongues, it was simple to guess missing vowels provided all the consonants were supplied, so there was no need for vowel signs. When peoples of other lands borrowed the Phoenician alphabet they soon made up their own signs for vowels or for any additional consonants their languages called for. So today there are many different alphabets, but all are based on the original one that began in Phoenicia.



Phoenician vessel.





## THE HEBREWS

The Hebrews, or the People of Israel, were a Semitic people who occupied much of the Middle East. The word "Semitic" comes from the name of Shem, the son of Noah, their legendary ancestor.

Not very long after 2000 B.C. some of the Hebrew clans, under the leadership of the patriarch Abraham, migrated to Canaan, in Palestine. In later years other tribes followed them, and the area became well settled. This region, watered by the River Jordan, appeared to the settlers as an earthly paradise, where barley, wheat, olives, vines, figs and dates could all be grown, and where there was pasture for their herds. The seasonal rains were stored up in cisterns and, together with water from the river, used to irrigate the fields during the dry summers.

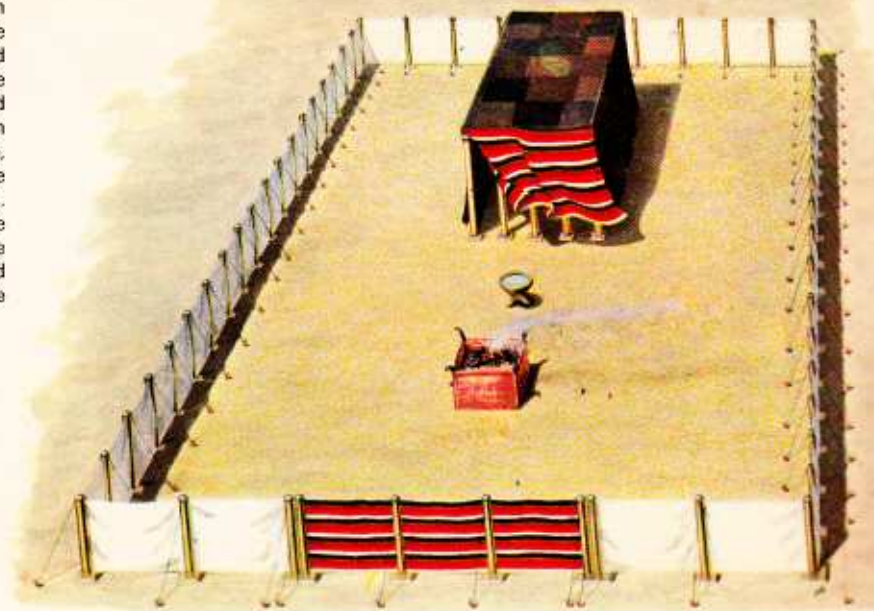
But at some period not later than the 14th century B.C., famine struck Canaan, and its effects may have been made worse by wars. As a result, many of the Hebrews were

obliged to move to Egypt. There they lived happily for some time in the Land of Goshen, to the East of the Nile Delta. They were accepted as equals by the Egyptians, and one of them – Joseph – actually became right-hand man to the pharaoh. Yet soon a new dynasty of kings came to power, and the Hebrews were enslaved. In time their sufferings grew intolerable, and the Bible tells how, after many attempts, they escaped from bondage under the leadership of the prophet Moses and made their way back to the promised land of Canaan. In the first few books of the Old Testament we can read of their dramatic crossing of the Red Sea, and their forty years of wandering in the desert, during which Moses gave them the Book of the Law, which was henceforth preserved in the Ark of the Covenant.

In the first 150 years or so after their return to Canaan (about 1200 B.C.) there was little peace for the people of Israel. Not only did



The first place of worship made by the Hebrews was a portable structure called the tabernacle. Within the enclosure stood an altar where the priests offered sacrifices and the laver where they washed. The tabernacle itself was a flat-topped linen tent supported by wooden posts. One part, the Holy Place, held the altar of incense and the seven-branched candlestick. Then, separated by a veil, came the Holy of Holies, which held the richly-ornamented chest called the Ark of the Covenant, where the Book of the Law was kept.



their twelve tribes often fight each other over territory and grazing rights, but they were also frequently at war with other peoples who had settled in Palestine. Sometimes, under the threat of foreign invasion, they would settle their differences for a time and unite under a strong warrior-chief known as a "judge," but his authority lapsed as soon as the danger was over, and tribal quarrels broke out afresh. However, from about 1100 B.C. onward the Philistines, a warlike people who had settled in the coastal plain, became increasingly active, waging almost continuous war upon the Hebrews and threatening their very existence. In 1028 B.C., under this heavy pressure, the tribes joined together under an elected king, Saul.

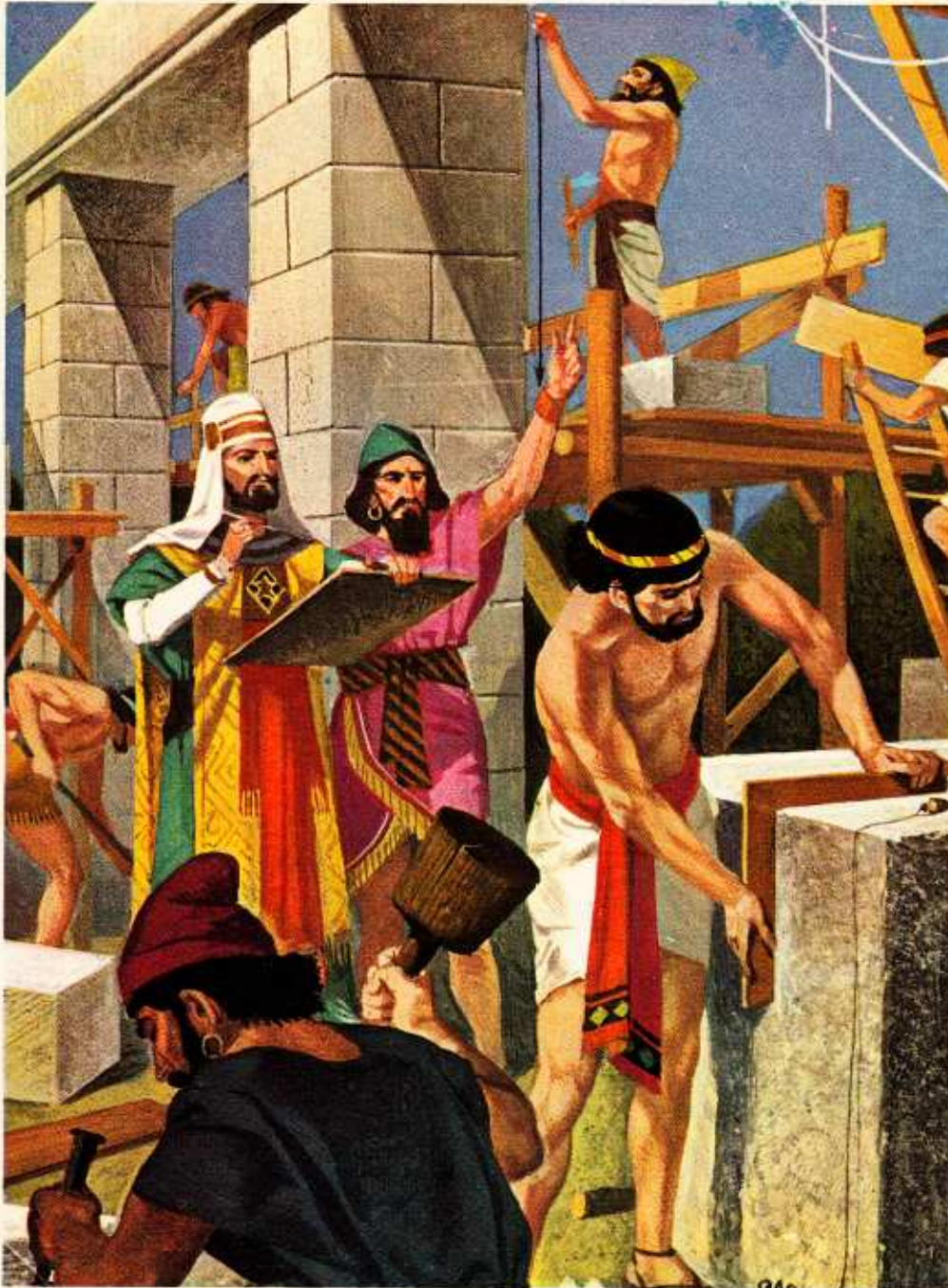
Although Saul did much to unify the Hebrews, and led them to many important victories, he lost his last battle, at Gilboa, against the Philistines. It was his successor, David, a man of a different family, who finally brought the Philistines to defeat, and

who founded a line of kings that lasted more than four hundred years. David, who was both a religious and a military leader, established a permanent army and made Jerusalem the capital of Israel. The task of raising the status of the country, and turning Jerusalem into one of the most renowned capitals in the ancient world, fell to David's son Solomon, whose wealth and wisdom have both become proverbial.

Solomon had a new port constructed on the Red Sea, so that his ships could trade directly with the East, and made an alliance with Hiram, King of Tyre, in order to obtain timber and skilled craftsmen for a prodigious building programme. Since he himself lived in great luxury and kept an enormous personal retinue, some of his finest buildings were royal palaces. Since he commanded an army that boasted 1400 chariots and 12,000 horsemen, he also turned certain ancient ruined towns into fortified cities, among them being Megiddo, some fifty miles south



An artist's idea of builders at work on Solomon's palace.







An artist's reconstruction of Solomon's Temple, cut away to show the interior. Walls and doors were covered with fine carvings in olive and cedar wood. At the porch stood two brass pillars. At the far end was the Holy of Holies.

of Tyre. Yet his most celebrated work was the Temple of Jerusalem, a great complex of buildings that occupied a site of several acres, took seven years to build, and lasted until the time when the city fell to the Babylonians, in 586 B.C.

In the eyes of the Hebrews, the Temple not only glorified God but also served as proof of their new-found wealth and power. A number of courtyards surrounded the long oblong of the Temple proper – first the Court of Strangers, then the Court of Israelites, and finally the Court of Priests and Levites who alone might enter the Sanctuary. Two huge brass pillars, named Jachin and Boaz, were raised before the porch; the altar of sacrifice stood outside. Within, the walls and doors were lined with panels of cedar and olive wood carved with figures of cherubim (supernatural beings thought to be the guardians of heaven), palm trees and open

flowers. A veil hung before the entrance to the Holy of Holies, where the Ark of the Covenant reposed.

But the impressive building works of Solomon were accomplished only at the expense of heavy taxation and forced labour. These caused such great unrest that after Solomon's death his kingdom split into two parts. In the north was Israel, with its capital at Samaria; in the south was Judah, with its capital at Jerusalem. Israel was absorbed by the Assyrians in 721 B.C. Judah survived until 586 B.C., when it was invaded and conquered by the Babylonians under Nebuchadnezzar II. He captured Jerusalem and took most of the inhabitants back to Babylon as captives. There they remained until the Persians conquered Babylon in 539 B.C. Then, within the matter of a year, they were released.

The exiles returned to Judah, and rebuilt the city of Jerusalem. Yet the Jews, as these



survivors of the Twelve Tribes of Israel were now called, had many centuries to wait before they again enjoyed complete independence, for their country became subject, in turn, to Persian, Greek and Roman domination. In A.D. 70 the Romans destroyed Jerusalem, and from then on the Jewish people were forced to live in exile, scattered throughout Europe and the Near East. Not until 1948 did they again find a national home, in the modern state of Israel.

Because much of the history of the Hebrew people is related in great detail in the Old Testament, we are more familiar with their customs and achievements than we are with those of most other peoples of antiquity. The men were generally of distinctive appearance, with prominent noses, high cheekbones, beards and curly black hair. At first their clothing was simple – tunic, sandals and turban-like headdress – but as their prosperity increased, they adopted leather shoes and more elaborate garments. The women were often remarkable for their beauty, which they enhanced by painting their cheeks and eyelids, and adorning themselves with jewellery.

We know that in ancient times these people numbered among their ranks fine poets and musicians like David, the great

law-givers like Moses, men of wisdom like Solomon, and mighty warriors like Saul. We also know that many of the ordinary people were highly skilled in husbandry, in all kinds of arts and crafts, and in trading. Yet the chief contribution of the Hebrews to later civilisations lay in their ideas on religion and conduct.

They were the first people to worship one God instead of many; and even though they thought of themselves as His specially chosen people, they also regarded Him as the creator of all men, and worthy of all men's undivided worship. Their faith survived all national calamities and persecutions, and it was from it that Christianity later developed. The acceptance of one universal God also became fundamental to the Islamic faith.

With the worship of a universal God, the Hebrews coupled a universal code of conduct, for six of the ten commandments were concerned with people's duty to their fellow men. The highly practical Hebrews also realised that a man has duties to himself, which he cannot neglect without losing his dignity and his health. In the Old Testament we therefore find many rules of hygiene and diet that the Hebrews were expected to observe. Some of them are still observed.

Between the sacrificial altar and the porch of the Temple stood this bronze laver, called the "molten sea." Nearly 15 feet in diameter, it was supported by four groups of oxen, each facing a main compass point.





## THE MINOAN CIVILISATION

While the civilisations of Egypt and the Middle East were developing, herdsmen and primitive farmers from both western Asia and the European mainland began migrating to Crete. There, on an island only half the size of Yorkshire, they gradually built up the first civilisation in Europe. From the name of Crete's legendary King Minos we call it the Minoan civilisation.

By about 3000 B.C., when the early pharaohs were building the great pyramids, the settlers in Crete already knew the use of bronze and were skilled in many crafts, particularly pottery-making. During the next few centuries they learned to tend their vineyards and fields so well that they were eventually producing more wine and grain than they needed. Then they began to ship the surplus of this food to Egypt, in exchange

Cretan woman and wall-painting from the city of Knossos.



Conical ritual vase or rhyton, now in the Louvre, Paris, and a bowl now in Candia Museum, Crete.



for many different kinds of luxury goods.

The trade between Crete and Egypt, carried on mainly by the island's seamen and ships, continued for many centuries. Modern archaeologists therefore unearth all kinds of Egyptian products from ancient Cretan tombs and ruined buildings. Since Egyptian records show when all these products were made, such finds enable us to put dates to the main events in Minoan history. Otherwise we could not do so, for although the people of Crete could write, their own records tell us very little.

Soon after 2300 B.C. they developed a form of writing made up of many little pictures and symbols that no one can now understand. Seven centuries later they began





Cretans playing game rather like draughts.

to use two sets of syllable signs now called Linear A and Linear B. Some years ago a British scholar named Michael Ventris deciphered Linear B, and found that it was used for writing a very early form of the Greek language; but the few Linear B inscriptions which have so far been read are

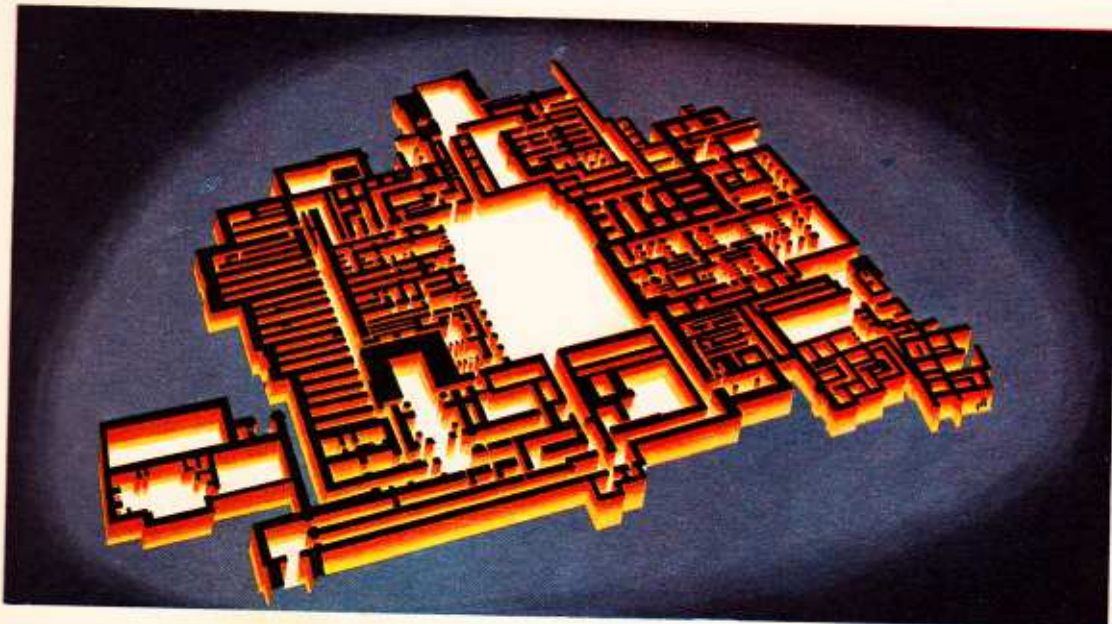
little more than catalogues and inventories. And Linear A is still a mystery.

However, with the help of Egyptian finds we have learned something about the sequence of events in Crete; and the remains of things which the Cretans made themselves have told us a good deal about what kind of people they were and how they lived.

During the centuries between about 2600 and 2000 B.C., which archaeologists call the Early Minoan period, the people of Crete steadily improved their craftsmanship as potters, toolmakers, jewellers and makers of weapons. At first their work was rather similar to that of the early inhabitants of Asia Minor, but gradually it began to take on a distinctive character of its own. At first, too, most of the people lived in scattered villages in the eastern part of the island, but gradually many of them moved to a few growing towns near the centre and in the south.

The change seems to have called for a strong form of government to organise things, and from about 2000 to 1550 B.C. the Cretans were unified under kings whose main centres of government were the cities of Knossos and Phaestos. During these years,

Reconstruction of the great Palace of Knossos.







Minoan bull-leaping. The man in the foreground holds a two-bladed axe, or *labrys*.

called the Middle Minoan period, the people of Crete raised their civilisation to its greatest heights. Neither Phoenicians nor Egyptians could yet match them in ship-building or seafaring, so they were free to enlarge and beautify their cities and palaces without fear of invasion.

When archaeologists began unearthing those cities and palaces more than sixty years ago they were astonished by the grandeur they discovered. They were also surprised to find how their discoveries tied up with old legends. According to a Greek legend, King Minos of Crete built a huge labyrinth in which he kept a monster called the minotaur, with the body of a man and the head of a bull. Once every nine years Athens had to send

seven youths and seven maidens to be sacrificed to it. Excavation showed that the Palace of Knossos really was a labyrinth, for its complicated network of rooms, stairways and corridors covered several acres of land. Besides living quarters for king and courtiers, it contained government offices, guard rooms, many storerooms, and a shrine. The upper floor was supported by pillars consisting of whole tree-trunks, placed thin end downwards.

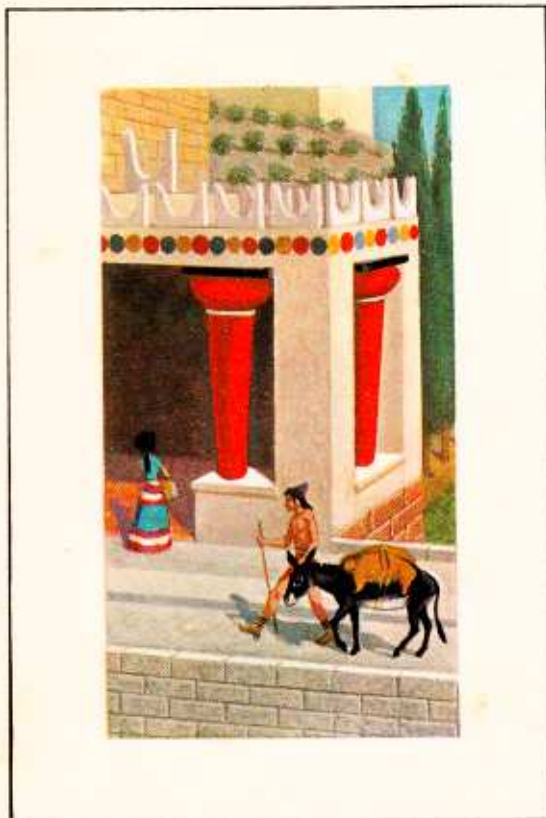
Of course the palace held no trace of a bull-headed monster, but both there and elsewhere in Crete archaeologists found many wall-paintings and statues of bulls, which seem to have played a very important part not only in the religion of the Cretans but



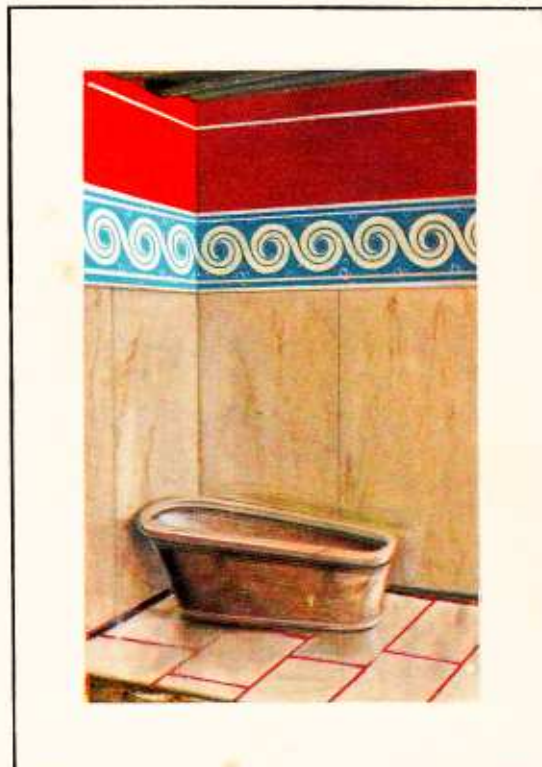
even in their sport. One painting shows a youth engaged in the sport of somersaulting over a bull's back. Other paintings show us how the Cretans dressed. The men, clean-shaven and with dark, curly hair held up by a band, usually wore a loin-cloth and a belt of leather or embroidered cloth, but for special occasions wealthier citizens donned long flowing robes and turbans. The women, whose hair was always elegantly styled, wore bodices drawn tightly in at the waist and almost ground-length skirts, both garments usually being coloured and embroidered.

Many tablets of painted pottery depict the two-storied stone houses in which Cretan artisans lived. Other finds include statuettes and weapons of bronze, and pottery vessels of all shapes and sizes, many of them decorated with geometrical designs or patterns of stylised leaves and flowers. All indicate a high standard of craftsmanship and art.

Supporting pillars in Cretan palaces were made from whole tree-trunks turned upside down.



Bathroom in the queen's apartment of the Royal Palace of Knossos.



Somewhere about 1550 B.C. Crete was rocked by a great earthquake which destroyed many of its fine buildings. But they were rebuilt – some on an even grander scale than before – and arts and crafts again flourished during what is known as the Late Minoan Period. Then from about 1400 B.C. people from Mycenae, on the Greek mainland, somehow gained more and more control in Crete. From then onward the Minoan civilisation gradually lost its own special character, but much of its inheritance passed to the men and women of Mycenae.



## THE ACHAEANS

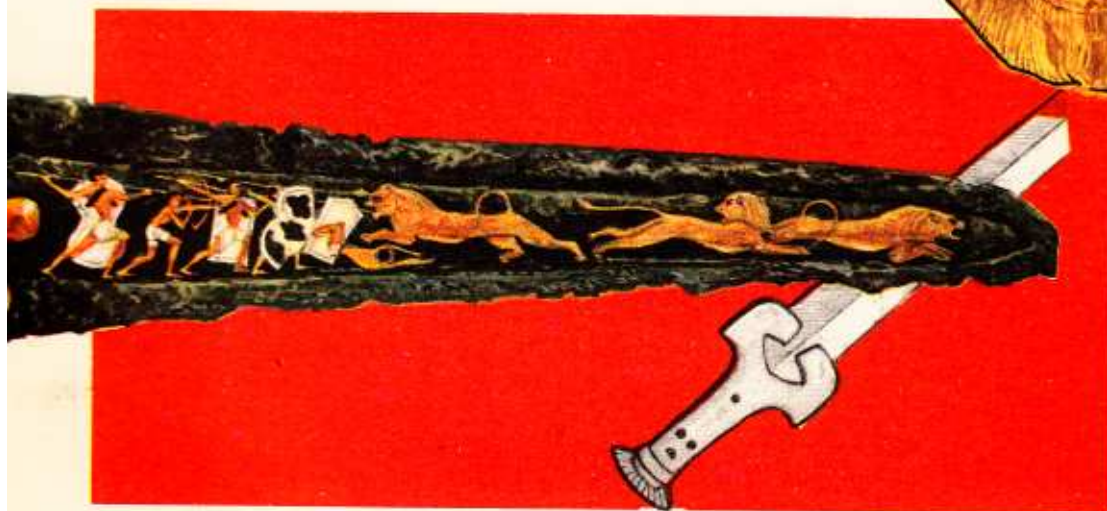
At about the time when the Cretans were first trading with Egypt, various tribes who spoke early dialects of Greek began to push down through the Balkan Peninsula and into the Greek mainland. It seems probable that they included the people whom the poet Homer described as the Achaeans.

By some date around 1600 B.C. these people had firmly established themselves in the large peninsula of southern Greece called Peloponnesus. There, only a hundred miles or so from Crete, they mingled with colonists of the Minoan civilisation and learned a great deal from them. This is shown by many examples of Achaean arts, crafts and architecture, which bear an unmistakable likeness to those of Crete. What is more, the Achaeans rapidly became expert ship-builders and seamen, both of which skills they could have learned only from the Cretans. But all this does not mean that the Achaean way of life was the same as the Minoan. In many respects it was very different indeed.

Living on an island and enjoying mastery of the surrounding seas, the Cretans had little fear of invasion. Living at the southern extremity of a land where other tribes were almost constantly coming in from the north, the Achaeans had always to be prepared for attack. So at a very early stage they equipped themselves with horses and chariots, and their craftsmen were kept busy making shields of leather and weapons of bronze, some of which were beautifully inlaid with hunting scenes in gold and silver. Defence even dictated the layout of Achaean cities. The Cretans could safely build the Palace of Knossos on a gentle slope, with the city nestling around it on a plain; but the Achaeans built their cities on high hill-tops,

Below: Mycenaean dagger blade inlaid with hunting scene in gold and silver.

Right: Gold mask once thought to be the mask of Agamemnon.







Reconstruction of the ship in which Odysseus made his ten-year voyage back home from Troy.

placing a strong citadel at the highest point, and surrounding the whole with thick, high walls. Among these walled cities were Argos, Tiryns, and Mycenae. It is from the last-named that the civilisation of the Achaeans came to be called Mycenaean.

Because southern Greece is criss-crossed with high mountain ranges travel was difficult, and a single government for the whole area would have been almost impossible. So each city, together with a small area of countryside around it, was governed by its own king, who was often a noted warrior. Though these kings enjoyed considerable power, they usually consulted their nobles on matters of government, and when particularly important decisions had to be taken they also sought the advice of an assembly of citizens. When there was danger of invasion the people of the countryside took refuge inside the city walls. The kings obtained their wealth not by taxation but partly from the gifts which their subjects offered them in return for protection, and partly from the plunder their own armies took whenever they won a battle.

The plunder must have been considerable, for there were plenty of battles, and the well-armed Achaeans won their full share. Quite often their cities fought one against another. Sometimes singly and sometimes in alliance,

they also took advantage of their seafaring ability to make war on peoples living on islands in the Aegean Sea, or along the coast of Asia Minor. There they had many successes, and founded colonies of their own. Indeed, the men of Mycenae eventually became strong enough to take control of Crete, though we do not know whether they did so by conquest or by inter-marrying with the Cretan nobility and gradually taking power out of their hands.

Yet the most famous war ever fought by the Achaeans was the one which the two cities of Mycenae and Sparta waged against Troy, near the north-eastern tip of Asia Minor. The story of it is told in one of the world's oldest poems – the *Iliad* of Homer. According to Homer, who wrote four centuries after the event, it all began because the son of King Priam of Troy eloped with Helen, the wife of Sparta's King Menelaus. As a result, Menelaus made an alliance with his brother Agamemnon, King of Mycenae, and the armies of both cities laid siege to Troy and finally burned it down. The reason which Homer gives for hostilities may well be

Bust of Homer, author of the *Iliad* and the *Odyssey*.





fanciful, but there seems no doubt that the war really did take place, around 1200 B.C. By then the Achaeans were under heavy pressure from new tribes coming into Greece, and they probably fought Troy in order to gain alternative living space for their own people.

About a century ago an archaeologist named Heinrich Schliemann unearthed the site of Troy and discovered that in ancient times several different cities had existed there, one after another. Although one of them still contained a large quantity of gold ornaments they had each in turn been destroyed – more than one of them by battle and burning.

A few years later Schliemann began to dig at Mycenae, hoping to find remains dating back to the time of Agamemnon. Beside unearthing the walls and gates of the city and opening several tombs cut out of solid rock, Schliemann found many treasures of ancient Mycenae. They included gold rings, masks and breastplates, weapons of bronze and silver, much jewellery, and many splendidly decorated bowls and chalices of silver and gold. Schliemann believed that the gold mask shown on page 40 was the mask of Agamemnon. He also thought that one chalice was a relic of the Trojan War. However, later work proved that Schliemann's finds dated back to about 1600 B.C. – four centuries before the siege of Troy.

Ancient treasures of gold and silver tell us something about the wealth and power of Achaean kings and nobles, and a great deal about the skill of Achaean craftsmen. But to

discover how the ordinary people of the Mycenaean civilisation lived we have to rely on less spectacular finds – the foundations of houses, commonplace tools and weapons, everyday scenes painted on pottery and so on.

In contrast with the short, dark-haired Cretans, the Achaeans were mainly tall and strongly built, with blue eyes and blond hair. We know little about their workaday clothing, but the men, usually bearded, probably wore woollen knee-length tunics, held at the shoulder by a clasp. The women we see depicted on Mycenaean signet rings (probably among the wealthier ones) were slender, with elaborate hair styles and wearing long flounced skirts. Houses had stone foundations, floors of beaten earth, and were built of sun-dried clay bricks. Even palaces had no windows or chimneys; the fire burned in a brazier and the smoke found its way out through a hole in the roof.

The staple food for ordinary people was barley meal, ground in hand-mills, baked into cakes on iron griddles, and washed down with wine. They also frequently had fish and beans, the cooking being done in olive oil. Meat was mainly a delicacy for the wealthy, eaten when they gave feasts. The animals were first sacrificed to the gods on an altar in the courtyard, then roasted on spits before the fire. Servants and dependants as well as guests joined in the feast, and afterwards listened enthralled as minstrels told tales of long-ago battles. Perhaps it was from minstrels that Homer heard the story of the Trojan War and of the ten-year voyage home of the hero Ulysses, or Odysseus.





## THE GREEKS

Less than a hundred years after the siege of Troy new invaders began to pour into southern Greece. They were the Dorians, who spoke a different dialect of Greek from the Achaeans and used very different weapons. Probably by contact with people living near the middle of Asia Minor they had learned the use of iron. With tough iron swords and spears they were soon able to overcome the Achaeans whose weapons, however beautiful, were made of the softer metal, bronze. In time the Dorians made themselves masters not only of Peloponnesus but also of Crete.

Meanwhile more newcomers, speaking yet other dialects of Greek, were settling farther north on the mainland of Greece: the Ionians in Attica and the Aeolians in Thessaly, from which areas they both later

colonised the nearby coast of Asia Minor.

By about 1000 B.C. all these peoples had begun to set up small city-states. Though these were all independent, and quite often warred with each other, their inhabitants gradually came to think of themselves as all belonging to a single nation, the Greeks or Hellenes. And together they built up Greek civilisation.

That civilisation is one of the main foundations on which the Western World's way of life still rests, and we are rightly filled with admiration for the people who produced it. But we have to remember that compared with peoples of earlier times the Greeks had a flying start. From the men of Crete and Mycenae they inherited a knowledge of ship-building and seamanship. They may also

Greek ships in harbour, bireme (foreground) and merchant vessel.





have learned something about these arts from the Phoenicians, because at one time both Greeks and Phoenicians had colonies in Cyprus. From the beginning, therefore, the Greeks were able to trade with many parts of the Mediterranean, and in the end they took over most of Phoenicia's sea trade.

Even before they settled in Greece, various Greek-speaking peoples were familiar with wheeled vehicles (first used in Sumer), horses (first tamed somewhere in the heart of Asia), iron-working (probably pioneered in Asia Minor), and pottery-making (a craft dating back to the New Stone Age). Not very long after they settled and began to trade they became acquainted with other important ingredients of civilised life: the astronomy, arithmetic and geometry of Egypt and Babylonia; weights, measures and coinage developed in the Middle East; building methods first tried out in many other lands; alphabetic writing invented in Phoenicia; and papyrus made in Egypt. Papyrus was the first material that was both cheap enough to use for book-length writings and easy to store.

What was remarkable about the Greeks was that they took all these old ingredients and blended them into something new and splendid, just as a composer takes the old notes of a scale and turns them into a

Greek coins.



symphony. But they did more as well. They added new ingredients and new subtleties of their own – a wonderful sense of shape and form, new ideas about justice, liberty and democracy, insistence on logical reasoning and proof, and a love of experimenting with new ideas. From about 750 B.C. onward, colonists spread Greek civilisation to many parts of the Mediterranean; soldiers and seamen later defended it against the might of the Persian Empire; and eventually Alexander the Great carried it eastward far into Asia and southward to Egypt. In Egypt, in the city of Alexandria, Greek learning flourished until late Roman times.

From about 750 B.C. onward the Greeks founded many colonies in southern Italy. They grew to be very prosperous and powerful and came to be called "Magna Graecia" (Great Greece).







Training of Spartan boys in running and wrestling.

It would have been hard for all the Greeks to share a single government even if they had wanted to. The areas where they settled were mainly small coastal plains, cut off from one another by mountain ranges and long gulfs of the sea, and there were no big navigable rivers to make transport easy between them. This alone encouraged the city-states of each plain to develop along different lines. But there was also another circumstance, connected with soil and climate, that made them do so.

In some areas, including Thessaly and the large off-shore island of Euboea, grain could be grown in abundance; around Athens and Corinth, on the other hand, it grew poorly. So Thessaly and Euboea concentrated on growing and exporting grain, while relying on other areas for imports of wine, olive oil and manufactured goods. In contrast, Athens and Corinth, besides growing vines and olives, manufactured all kinds of goods for export, while importing most of their grain from Euboea, Thessaly, and the Greek colonies in Sicily.

It is therefore not surprising that the various city-states developed different laws and customs; nor is it surprising that they sometimes came into conflict with one another. Much more remarkable is the fact that almost all of them eventually became democracies, and that all were ready to stand

shoulder to shoulder against a common enemy when the need arose.

The state which showed the greatest contrast with all the rest was Sparta in Peloponnesus, which also happened to be one of the biggest. There democracy never existed, nor did most of the arts reach such impressive heights as elsewhere in Greece. Everything was geared to war.

By 716 B.C. the Spartans had conquered the plain of Messenia, some miles to the west of their city, and made its inhabitants slaves. These slaves, called *helots*, had to farm the land for their masters. The Spartans also ruled their near neighbours, the Laconians, allowing them to trade or farm their own plots of land, but denying them the full privileges of citizenship. These "second-class citizens" were called the *perioeci*, or dwellers-on-the-outskirts, and apart from being forced to serve as foot-soldiers in the army from time to time, they probably had little to complain about. But the helots were treated cruelly; indeed, a full citizen could kill them if they offended him in any way.

More than once the helots revolted, and by the end of the seventh century B.C. the Spartans were becoming seriously alarmed. To make further large-scale uprisings impossible they then reorganised the state with only one thing in mind, superb military efficiency. The first thing they took into



account was that there was no need to teach Spartan youths a trade; all such humble work could be left to the helots and perioeci. So from the age of seven upwards all healthy boys were taken away from their families and sent to state institutions to begin an intensive training in physical culture and the use of weapons.

To accustom them to hardship, they were allowed to eat only food of the simplest kind – mainly bread and an almost black soup. To harden them against all weathers they always went barefoot, wearing heavy woollen clothes in summer, and thin tunics in winter. At night they had to go out without torches, so that they would grow up unafraid of the dark. They had practically no amusements and were discouraged from speaking more than was absolutely necessary. Their only songs were songs of war.

Harsh and bleak though this training was, it had the desired result. At the age of twenty, when a Spartan youth automatically joined the army, he was tough, well-disciplined, utterly fearless, and ready to serve the state without question. Not until he was thirty would he be allowed to marry and live a normal family life, and even after that he would still remain liable for military service for a further thirty years. But in the meantime he

knew that he was a member of the finest army in Greece, and probably in the whole world. As a true Spartan citizen he might be a mounted soldier, or specially trained in single combat. The great phalanxes of heavy-armed foot-soldiers, called hoplites, were recruited from the despised perioeci.

Though girls could not enlist in the army, they took an equal pride in it. Their training in gymnastics was much the same as that of boys, and when they became women their ambition was to have sons who would prove themselves brave warriors. For women as well as men, what mattered in battle was not personal survival but victory. When her son was setting off for war a Spartan mother did not beg him to avoid danger; her farewell message was "Return bearing your shield, or carried on it."

Believing that the interests of the state were more important than the welfare of individuals, the Spartans were content with a form of government that took little account of personal opinions. At the head of the state were two hereditary kings, who were also priests and commanders of the armed forces. They were advised and assisted by a council of 28 senior citizens, which also acted as a court of justice. Only this council, known as the *gerousia*, could propose any new laws.

Spartan hoplites advancing.





Spartan warrior.



When it did so, the proposals came before an assembly called the *apella*, which all full citizens could attend.

But the power of the citizens was strictly limited. They could say yes or no, but they were not permitted to suggest any changes. However, they were allowed each year to elect five *ephors*, to act as judges and to conduct negotiations with other states; and in time these *ephors* became the real rulers of Sparta.

Because Sparta shunned luxury, preferring to put all its time and talent at the service of its army, it made a smaller contribution to Greek art and science than it might otherwise have done. Yet on one occasion, at least, the bravery of Spartan soldiers saved the whole of Greece from disaster. That was in 480 B.C., when the Persians, under the Emperor Xerxes, launched their third and last attack against the Greeks. The Persian troops, nearly 200,000 strong, were advancing on Athens from the north, through mountainous country. It seemed that nothing could stop them, but in the narrow pass of Thermopylae they were met and held by a few hundred Spartans. Eventually the

Spartans were wiped out, and the Persians continued their advance. But Sparta's heroic stand gave the Athenians time to retreat to prepared positions; and the Athenian fleet was then able to inflict a crushing naval defeat on the Persians at the Battle of Salamis. Thus Sparta and Athens in alliance saved the civilisation of Europe from being swallowed up in that of the Middle East.

Yet Sparta and Athens were not often allies. From the middle of the fifth century B.C. onward, especially, they were bitter rivals. Backed by other city-states, they fought a series of wars, called the Peloponnesian Wars, which gradually weakened both. Afterwards, neither could ever regain its full strength, and in 338 B.C. King Philip of Macedon was able to conquer both, and make himself master of nearly all Greece. Yet even this was not entirely a disaster, for when Philip's son, Alexander the Great, came to the throne, he led his conquering armies to Egypt, Persia and Mesopotamia, spreading Greek influence wherever he went.

When people speak of Greek civilisation they are seldom referring to the harsh discipline and barrack-like life of Sparta. They nearly always have in mind the many other city-states which, during long periods of peace and prosperity, set up democratic forms of government and made great advances in the arts and sciences. Above all, they are referring to Athens, whose contributions to government and culture were quite outstanding.

Attica, the peninsula on which Athens stands, extends south-eastward into the Aegean Sea, with Peloponnesus adjoining it in the south-west and the rest of Greece stretching away to the north-west. There were small towns and cities there as long ago as the days when the Achaeans flourished in Mycenae, and in the course of time Athens came to be the most important one. People of other nearby towns gradually gave up their local citizenship in exchange for citizenship of Athens, and by about 700 B.C. it was the





Artist's reconstruction of the Acropolis of Athens just before 400 B.C. 1 - Propylaea, 2 - Parthenon, 3 - Erechtheum, 4 - Temple of Athena the Victorious, 5 - Theatre of Dionysus.

undisputed capital of all Attica. From then onward we can think of the whole peninsula as making up the city-state of Athens.

Probably in accordance with some old Achaean custom, the population was divided into four tribes. More important, it was also divided into four social classes - nobles, owner-farmers, craftsmen-traders, and peasants. At first, government was far from democratic. Only the nobles could hold high office, and only they could belong to the powerful assembly called the *areopagus*. Until 683 B.C. the head of state was an hereditary king, but then he was replaced by a council of nine *archons*, elected by the members of the *areopagus*. Fifty years later an archon named Cylon abused his position and tried to make himself tyrant of the city. Although his attempt failed the nobles became alarmed,

and some years later they appointed Draco to draw up a new constitution and draft new laws.

Unfortunately the laws which Draco decided on in 621 B.C. were very harsh, and inflicted great hardship on poorer people. The reason is that coinage had already come into use in Athens, and wealthy men had begun to lend out money at interest rates as high as 18 per cent. The chief borrowers at first were the poor, and at such high rates many of them could never pay off their debts in full. Draco decreed that such people could first be deprived of everything they owned and then sold as slaves. After this law had operated for thirty years there was grave risk of revolution and bloodshed in the city. So a wise statesman called Solon was given the task of reforming the existing law in order to help in



relieving the distress of the poor people.

He first cancelled all existing debts, freed citizens who had been enslaved for non-payment, and made it unlawful for future debtors to be sold as slaves. These measures, called "the shaking off of burdens," were followed by another one that made personal borrowing less necessary: all people who had no land were given a trade, so that they could earn money. A further step designed to increase prosperity was to attract foreign craftsmen to Athens by offering them citizenship. Solon also divided all citizens into four classes according to wealth. Only the richest could hold high office, but even the poorest (the *thetes*) could vote in the assembly called the *ecclesia*, which elected magistrates.

Solon's reforms encouraged an increasing number of people to feel some responsibility for the way their city was governed, but when his term of office ended, progress seemed to end with it. Two more periods of rule by tyrants followed, and it was not until 508 B.C. that democracy really took shape. It was then that Cleisthenes divided the whole population into ten "tribes," each of

which sent 50 representatives to a council responsible for discussing' making and enforcing laws. Nor was this all. Ordinary citizens were encouraged to take an active part in the affairs of Athens. Regularly they would gather at street corners, and in the great square of the Agora, or market place, to discuss the latest news, voice their own opinions and hear the views of others. At first once a month, and later nearly every week, they were summoned to the assembly (*ecclesia*) to debate and vote on all kinds of political problems – taxation, expenditure on the army and the fleet, and reports from abroad; on special occasions they also met to elect archons.

Of course, some people claimed that they were too busy to attend such meetings, but if they frequently failed in their duties they ran the risk of being *ostracised*. Ostracism was a device which Cleisthenes introduced to prevent any individual from being either too neglectful or too powerful in politics. Every year, at a meeting held in the Agora, citizens wrote down the names of the men they most mistrusted on pieces of pottery (*ostraka*).

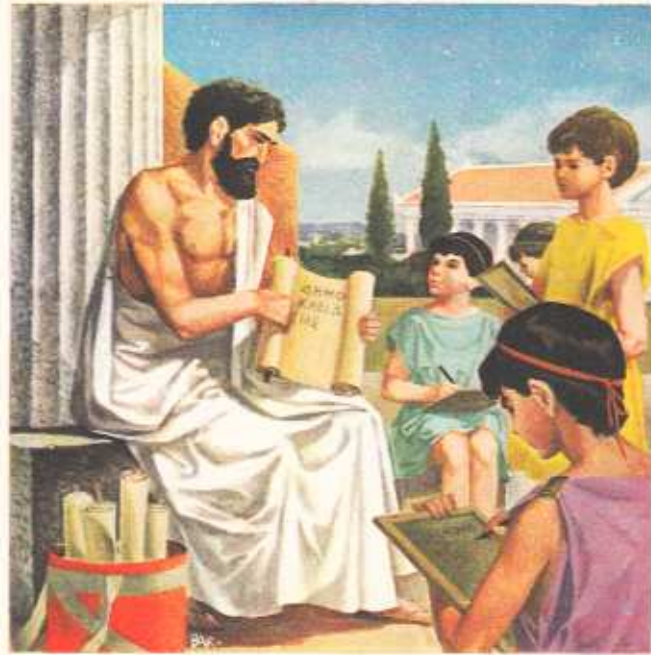
The Agora at Athens, market place and meeting place.







Left: Greek alphabet, wax writing tablets, and stylus made of ivory.



Right: Greek open-air school for boys.

They were dropped into urns, just as voting papers are now dropped into ballot boxes. According to the number of votes against him, the disliked citizen was sent into exile for five, ten or fifteen years.

Democracy means "government by the people," but in Athens it was in fact government by free citizens only. Slaves, though usually not badly treated, had no voice in the city's affairs. We also have to remember that in Athens all free men could take a *direct* part in government, because the population was small and they could all meet. In the huge states of today this is impossible, so the bulk of citizens have to elect representatives to speak and vote on their behalf in the law-making assembly. Nevertheless it was the Greeks, and especially the Athenians, who first worked out the two main principles still accepted in modern democracies. The first is that every citizen is entitled to make his opinion felt on all matters of public importance. The second is that statesmen chosen to govern can be called to account by those who are governed.

Training an Athenian youth to think for

himself called for very different methods from training a Spartan youth to obey commands. Athenian children lived at home with their family until they were seventeen years old. During much of that time they attended school to learn to read and write, to sing, to enjoy poetry, to study philosophy, and to do physical exercises. The schools were usually grouped around the Agora, and consisted of a large open courtyard surrounded by a colonnade. Younger boys would sit in the open air, learning to read or to do calculations with the abacus. At first they wrote with a stylus on little tablets coated with wax, but as they progressed they used pen, ink and papyrus or parchment. To spend all their time on reading, writing and arithmetic would have been tiresome, so there were breaks for singing, dancing and performing short plays. Older boys learned the history and legends of their country and usually a good deal about geometry and music. They were encouraged to discuss with their masters all kinds of difficult problems about the nature of man and the universe; and in doing so they were taught to





Soldier wearing tunic (*exomis*) and cloak (*chlamys*); woman wearing *chiton*; man dressed in pleated *chiton* and cold-weather mantle (*himation*).



Street scene in Athens. Black-and-white drawings show sculptor, weaver and blacksmith at work.



Gold plaque, bronze mirror, and drachma. In the background is a lyre.



Pottery studio of about 650 B.C.



ask questions, use words carefully, and argue logically.

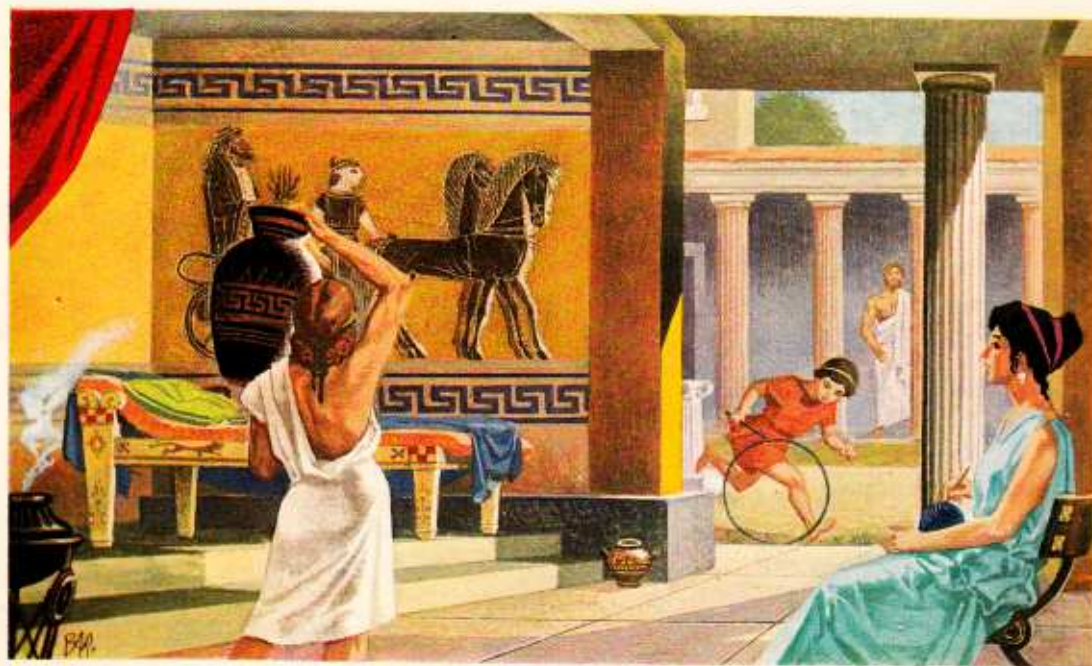
When schooldays ended, youths had to undertake military service. Besides doing drill and learning how to handle weapons, they were kept busy with sports and exercises designed to strengthen their muscles and make them agile. Although their period of military training was far shorter than that of the Spartans, they often proved themselves equally efficient when put to the test of war. In 480 B.C. the Spartans fought valiantly in the first line of defence against the Persians, at Thermopylae. But ten years earlier the Athenians had faced the might of Persia without Sparta's help, and their small unaided army had won a resounding victory at Marathon, some 25 miles from Athens.

At the age of twenty-one the young Athenian ceased soldiering, became a full citizen, and chose his profession. If he came of a wealthy family he might follow his father into business, learning how to buy and sell at a profit and how to keep accounts. The less

well-off would take up one of the many trades that flourished in the city, such as those of the potter, the goldsmith, the sculptor, the blacksmith, or the stone mason. Unless a citizen lived on a small farm in the countryside there was no question of doing heavy manual work, for that was attended to by slaves.

In the workshops and studios of Athens craftsmen and artists made all kinds of articles that were not only useful but also pleasing to look at and handle: inlaid furniture of the finest woods, musical instruments, stringed and woodwind, woven fabrics adorned with graceful designs, pottery vessels beautifully painted and glazed, mirrors of bronze, and ornaments of ivory and precious metals. Yet craftsmen did not spend endless time making their wares, for they had discovered one way of achieving what we now call mass production. In shoe-making, for example, one workman cut the leather to shape, another sewed the sole, and a third sewed the uppers. There were even

Inside the home of a typical Athenian aristocrat and his family.





Typical house of a well-to-do Athenian. The street door, which opened outwards, was guarded by a porter. The plan of the house, rectangular with the rooms grouped around a central courtyard, became characteristic of most Mediterranean lands.



some workshops that made nothing but women's shoes, while others specialised in footwear for men.

Goods for export were loaded on to swift ships propelled by a sail and two or three tiers of oarsmen, and carried to waiting buyers in the ports of Spain, Italy, Egypt, and the Black Sea. The same vessels brought back cargoes of grain, cloth, high-quality timber, and other things lacking at home. As increasing quantities of gold and silver flowed into Greece from the northern Balkans and Asia Minor, the use of money became more and more common, and by about 450 B.C. each city-state minted its own coins bearing its own emblems. The *drachma* of Athens carried the head of the goddess Athena on one side and her sacred bird, the owl, on the other; the gold stater of the nearby city of Aegina depicted a tortoise. Bankers and money-lenders were ready to finance all kinds of trading ventures, but charged extremely high rates of interest. Even so, trade and industry brought prosperity, and the standard of living of cities like Athens was generally high.

Athenian houses were usually built to the same plan. The various rooms – the *megaron* or hall, the *andron* or reception-room, and the bedrooms all opened off a central courtyard in which stood an altar to the god Zeus. The street door was on a level with the pavement,

and was provided with a heavy knocker in the shape of a ring held in a lion's mouth. Wall-paintings, decorated vases, and little statues of various Greek gods adorned the rooms. For lighting there were simple lamps of earthenware or bronze, in which the wick floated in oil. Furniture was sparse, since people spent most of the day in the open air. When a feast was held the guests reclined on couches, supporting themselves on one elbow, and served themselves with food from little three-legged tables. Towards sunset the whole family would assemble for the principal meal of the day. Other meals were generally light and informal, since the Athenian citizen led a busy life and his day was crowded with engagements.

The standard garment for both men and women was the *chiton*, which was little more than a rectangle of muslin or wool folded in half; the edges at the top and along the open side were joined with clasps. By the use of a girdle round the waist the *chiton* could be made to hang in graceful folds, and could be worn either short or full-flowing. The outer garment, which was used outdoors in cold or wet weather, was a mantle, the *himation*, equally simple in shape. People wore sandals or shoes only in the street; at home they went bare-foot.

Up to the fifth century B.C. men let their hair and beards grow long, but later they



preferred to be clean-shaven with fairly short hair. The ladies adorned themselves with necklaces, earrings and bracelets, and used a variety of cosmetics and perfumes. Their hair was usually curled and piled up on the top or back of the head.

To the Greeks, religion came to mean something quite different from what it meant to most other peoples of the time. All nations except the Hebrews then worshipped many gods; so did the Greeks, but their attitude to deities was very different. Although their local and national gods originally represented various natural forces, the Greeks had lively imaginations, and soon began to picture them in human form, sharing human virtues and weaknesses. That is why they made paintings and statues of them, and introduced them side by side with national heroes into plays and poems.

The old gods of Greece are no longer worshipped anywhere, but their names and attributes are still familiar to us through classical literature; and it is possible that more than one of today's religions owes something to the Greek idea that the divine can also be human.

Many Greek gods were later worshipped by the Romans, who gave them different names. Here the Roman names are given in brackets. The supreme ruler of gods and men was Zeus (Jupiter), who from his throne on Mount Olympus commanded the storm and the lightning. His wife was Hera (Juno) who watched over women and marriage. Apollo was the god of light, of youth, and of health. Hermes (Mercury) was the swift messenger of the gods, and protector of merchants, sailors and travellers. Artemis (Diana) was the goddess of the woods and of hunting, and later came to be associated with the moon. The god of the sea was Poseidon (Neptune) who, from his underwater palace would emerge to hunt whales and dolphins, carrying a trident to symbolise his mastery of the waves. Athena (Minerva) was goddess of wisdom and truth, and the special deity of Athens. Dionysus (Bacchus) was god of wine

and patron of the theatre. Hestia (Vesta) protected the hearth, and thus the welfare and happiness of the home. Aphrodite (Venus) was the goddess of love, and the ideal of female beauty and charm.



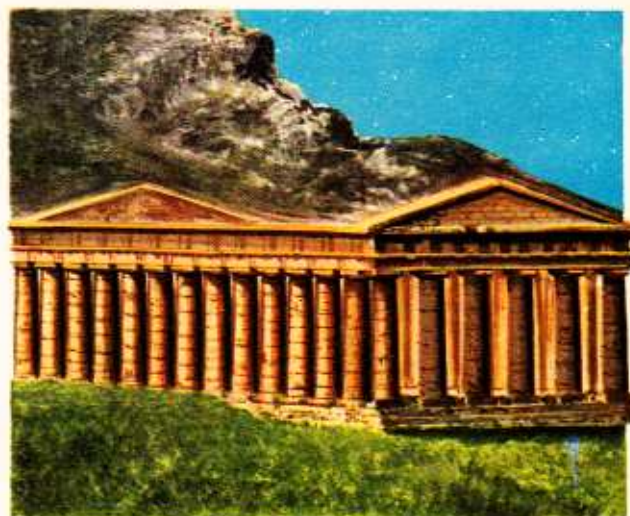
Vase painting depicting birth of Pallas Athene.

Every village throughout the Greek world had its shrine, and every city had its temples where the gods were worshipped in song and dance, by splendid processions and by the sacrifice of animals. Yet in contrast with other peoples the Greeks had no special class of priests. When the family worshipped at home, the father, as head of the household, acted as priest. On public religious occasions the state was represented by the chief magistrate, but the rites were carried out by an ordinary citizen, elected for the purpose on account of his knowledge of the ritual.



The Greeks believed in some kind of life after death, although their ideas about it were rather gloomy. The dead were either buried or cremated, according to the custom of the place and the period. In Athens there was a choice, and there were severe penalties for those who neglected their duties towards the dead.

The body, before being laid on the bier, was carefully washed, anointed with sweet-smelling oils, dressed in fine linen and garlanded with flowers. A small coin was placed between the dead man's lips so that he could pay Charon, the boatman, for rowing him across the river Styx to the underworld. When the body had been buried or cremated a cup of wine was poured on the ground to quench the thirst of the departed, and animals sacrificed to satisfy his hunger. The relatives then returned to hold a funeral feast, where the dead man was praised in song.



Temple at Segesta, in Sicily.

Hercules, hero and immortal of Greek legend.



The Athenians had a most democratic approach to justice as well as to law-making. Except for cases of murder, which were heard by a special body, all lawsuits came before a popular court. A magistrate supervised procedure, but the evidence was heard and the verdict given by a large number of jurors – from 201 upwards, according to the importance of the business. The jurors were chosen by lot from 6,000 citizens of good standing and paid a small daily fee for their services. It was risky for a man to bring a charge against a fellow citizen without good reason; if less than one-fifth of the jurors thought the charge was justified, then the man who brought it had to pay a fine. For people found guilty, the severity of the punishment depended on the seriousness of the crime. In less serious cases the penalty was a fine or confiscation of property; in more serious cases it could be banishment, loss of citizenship, torture, or even death. But when a man came into court he knew that his trial would be a fair one, and that he would not be punished merely because he





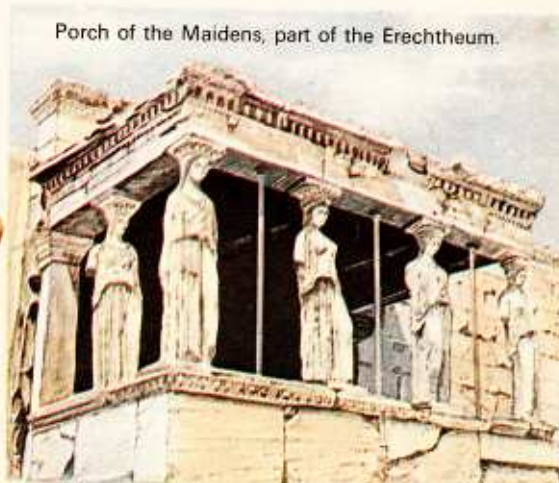
Archimedes of Syracuse with his device for raising water – a screw in a cylinder.



Above: Reconstruction of a Greek theatre. Inset: seat from front row, kept for dignitaries.



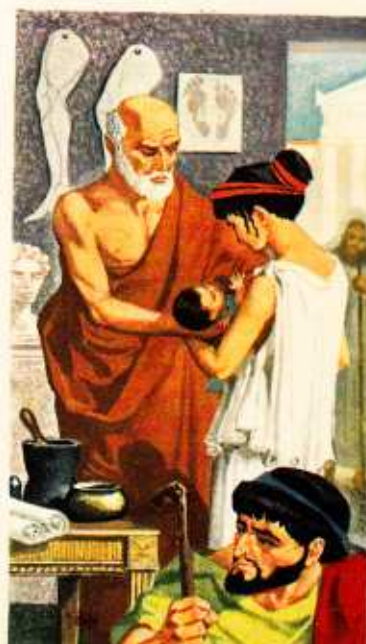
The masks used by Greek actors allowed back-row spectators to see the emotion being portrayed. The masks shown are tragic (top), comic (middle), and satyric. The mouthpiece helped the voice to carry. Shoes with thick soles added to the performers' height and so to their impressiveness.



Porch of the Maidens, part of the Erechtheum.



Machine used for raising stone blocks.



Hippocrates, who was the Father of Modern Medicine.



had spoken his mind. Indeed, Athens was considered a haven for those banished unjustly from other cities, for in Athens all citizens were free to express their opinions.

Freedom of speech encouraged a readiness to suggest and listen to new ideas. Even more important, weighing evidence in political and legal matters got people into the habit of demanding evidence that a new idea was sound. If it was, they accepted it; if the evidence in favour of it was not convincing they treated it with great caution. Further, with alphabetic writing and cheap papyrus, people were able to write down their thoughts about all kinds of subjects at great length, so that others could read them at leisure and add to them. In this atmosphere of intellectual curiosity and alertness, the arts and sciences made tremendous progress. And although Athens often led the way, the same curiosity and alertness prevailed in most other Greek city-states and colonies, giving rise to similar results.

Thales, who is regarded as one of the chief founders of Greek mathematics, lived at Miletus in Asia Minor from about 625 to 565 B.C., and had Phoenician as well as Greek blood in his veins. Pythagoras, another outstanding mathematician, was born around 582 B.C. on the island of Samos only a few miles from Miletus, but spent most of his life at Croton in southern Italy. Euclid, who gathered together the knowledge of earlier mathematicians and built up a complete new system of geometry, was born just after Alexander the Great founded the city of Alexandria in Egypt, and it was there that he lived and taught. Archimedes, one of the Greek scientists who turned his attention to mechanical problems as well as mathematics and astronomy, lived at Syracuse in Sicily during the third century B.C. Hippocrates (about 460 to 370 B.C.), who did more than any man before him to separate genuine medical knowledge from magic and superstition, was born on the Aegean island of Cos, but he founded medical schools in several

other places, including the city of Athens.

The period when Athens really towered high above all other Greek cities in the splendour of its achievements began soon after the Battle of Salamis, by which the Athenian fleet ended the Persian menace forever. Just before that great naval battle, in 480 B.C., the Athenians had been compelled to evacuate their city and watch from a distance as the Persians destroyed it. After the battle they returned, determined to rebuild it as the finest city in the Greek world. And within the span of a single lifetime they succeeded beyond all possible expectation.

The man mainly responsible was Pericles, who first became prominent in Athenian politics soon after 470 B.C. and thereafter dominated the city's affairs and reconstruction for many years. Under his guidance Athens was not only a democracy but an inspired democracy – inspired to create a prosperous city in which everything, from architecture to commerce, from drama to science, would be of the very best.

On the high part of the city, the Acropolis, splendid new buildings arose: the Parthenon, a temple dedicated to the goddess Pallas Athene; the temple of Athena the Victorious; a new Erechtheum, dedicated to several gods, including Erechtheus; and the Propylaea, the imposing entrance to the Acropolis. The Parthenon was remarkable for its many Doric columns – fluted, without a base, and surmounted by cushion-shaped capitals. The Erechtheum employed more decorative Ionic columns, and columns called caryatids, in the form of statues of women. Among the architects who worked on the Parthenon were Ictinos and Callicrates. Even more famous is Phidias, the man responsible for the statues that embellished the Parthenon and other buildings. In the years that followed, other great sculptors made their home in Athens, including Myron, Polyclitus and Praxiteles.

Splendid new outdoor theatres were also built where the drama quickly reached



heights that have never since been surpassed. There actors wearing masks showing various emotions, and thick-soled shoes to add to their height, first performed the tragedies of Aeschylus, Euripides and Sophocles which can still hold audiences spellbound. And among the men who lived in Athens during its rebuilding was Socrates. He was the first of a line of philosophers whose thinking still influences men everywhere, for Socrates was the teacher of Plato, and Plato the teacher of Aristotle. One of Aristotle's pupils was Alexander the Great, who later carried Greek ideas to much of the known world.

Yet not all Athenians were geniuses. Many were full of superstitions, thinking it

unlucky to hear an owl hoot, to break a shoe-lace, or to have a cat cross their path. And many doubtless ranked pleasure at least as high as public duty. We owe them much, for without them there would have been no audience for the drama, no readers for whom poets could write. There was also something splendidly sane about the pleasure-loving custom of calling a halt to all wars once every four years, so that the Olympic Games could be held in peace. Those games, to which every city-state sent its quota of enthusiastic spectators and competitors, did as much to bind the Greeks together in common nationhood as did the fact that they all spoke dialects of a single language.



Javelin-throwing at the Olympic Games, held every four years.



## THE ETRUSCANS

While the Greeks were in the process of forging democracy and planting colonies in southern Italy, much of the northern part of the Italian peninsula was dominated by the Etruscans. Although many of their writings still exist, and although those writings are in alphabetic characters, we know far less about the Etruscans than we do about the Egyptians or the Babylonians.

This is because they spoke a language which is spoken nowhere today, and which was quite unlike any modern European language. So although it is possible to pronounce the words they wrote down, it is extremely difficult to find out what they meant. It is true that experts have discovered the meanings of a few words, and hope in time to translate many more. But in the meantime our knowledge of the Etruscans depends chiefly on remains of their buildings, works of art, tools and implements, and on reports made in other languages by people who knew them.

Where they came from is by no means certain. Dionysius of Halicarnassus, a Greek

writer who lived in Rome at a time when Etruscan culture was still distinct from Roman culture, declared that the Etruscans were natives of Italy. Other writers, both then and later, claimed that they came from beyond the Alps. But most people are inclined to believe they migrated from Asia Minor, probably in the 9th century B.C. That was certainly the opinion of the famous Greek historian Herodotus, who lived from about 485 to 425 B.C.

Herodotus tells this curious story: "In the reign of King Athis a terrible famine struck the land of Lydia in Asia Minor. For some time the Lydians endured starvation, but as their condition showed no sign of improving, they began to consider what they could do to save themselves. They invented several games, including dice and draughts, and used them in a strange way. On one day they would eat, and on the next they would play one of these games all day long. In this way they were able to make their provisions last twice as long, forgetting their hunger in the excitement of the game. In this fashion they



From left to right: Etruscan soldier. Crested helmet of 7th century B.C. Painting of a musician, from tomb at Tarquinia. Cylindrical casket of bronze which probably once held the cosmetics and fine jewels of some Etruscan lady.







Etruscan costumes of about 500 B.C.

lived for eighteen years. Then, as the famine instead of decreasing in severity became even worse, the king divided all the Lydians into two groups, after which lots were drawn to decide which group should remain at home and which should go abroad in search of new lands. The king himself remained in his kingdom, and at the head of the emigrants he placed his own son, who was called Tyrrhenus. They went down to Smyrna on the coast, built a fleet of ships, and taking with them all their belongings set sail for unknown shores. After many adventures they reached the country of the Umbrians, in Italy, and there founded cities that exist to this day. However, they changed their name from Lydians to Tyrrhenians, after the name of the king's son, their leader."

Whatever truth there may be in the story of Prince Tyrrhenus and his band of emigrants, we do know that the dwellers in north-west Italy were known to the Greeks as Tyrrhenians; and to this day the part of the Mediterranean between the Italian mainland and Sardinia is called the Tyrrhenian

Sea. But the Romans called these people the Etruscans and named their land Etruria.

During the seventh and sixth centuries B.C. the Etruscans became powerful enough to gain control of nearly all the land between the River Tiber, near Rome, and the plains of Lombardy, near the Alps; they also seized a good deal of territory in southern Italy. But before and after their conquests they were restricted to an area roughly corresponding to the modern Italian province of Tuscany. It was there, especially, that they founded many cities, including Chiusi, Tarquinia, Veio, Vetulonia, Perugia, Volterra, Arezzo, Felsina, Marzabotto, Spina, Capua and Nola. They also built ports such as Populonia, from which they sailed ships bent on business or piracy.

Archaeological digging shows that Etruria must have had some very competent town planners, architects and engineers, for each city was built on the top of a steeply sloping hill, to make defence easy, and surrounded by massive stone walls constructed in a special way. The blocks of stone were cut so carefully that they dovetailed together almost perfectly, without the use of mortar. At the point least vulnerable to attack stood the city gate, surmounted by an arch decorated with sculptures in bas relief. Most cities had fine buildings, wide thoroughfares, aqueducts to carry water supplies, and elaborate drainage systems. The streets, paved in stone, were laid out in a regular pattern, crossing each other at right angles.

We know less about how ordinary dwellings looked, because only a few foundations now remain. These seem to indicate that the houses consisted of several small wood-roofed rooms arranged around an inner courtyard – somewhat like those of the Greeks. Most of the building was probably of bricks, either kiln-baked or simply pressed into shape from clay and left to dry hard. Both vaults and timber beams were used to support the roofs.

The twelve principal Etruscan cities (sometimes more, sometimes fewer) formed



a kind of federation, but each kept its independence and had a ruler. Once a year all the rulers met to discuss problems of common interest, and probably to decide on joint action in their frequent wars against neighbouring peoples.

The population was divided into three classes. At the top came the aristocrats, who possessed most of the wealth and all the political power in the land. It was from their ranks that a man was elected to serve as king for a fixed period. The next class was made up of all the free citizens – farmers, craftsmen and merchants. At the bottom came the slaves, who had no civil rights at all. They were mainly people captured in war, and it was they who did all the hardest manual work.

From wall paintings in tombs, and from the remains of things which they made, we can tell how the Etruscans looked and how they lived. Their large army, which was able to overrun much of Italy, consisted mainly of soldiers armed with spears or short swords of iron and carrying round shields. They wore elaborate helmets, protective tunics, and bronze greaves strapped to the lower leg. Before going into battle they would perform a kind of ritual dance, making a great noise and beating their spears against their bodies.

Civilians, both men and women, wore tunics, often embroidered in bright colours, and sandals or shoes of leather, with up-turned toes. Otherwise their clothes generally followed the pattern set by the Greeks. The women wore their hair long, either

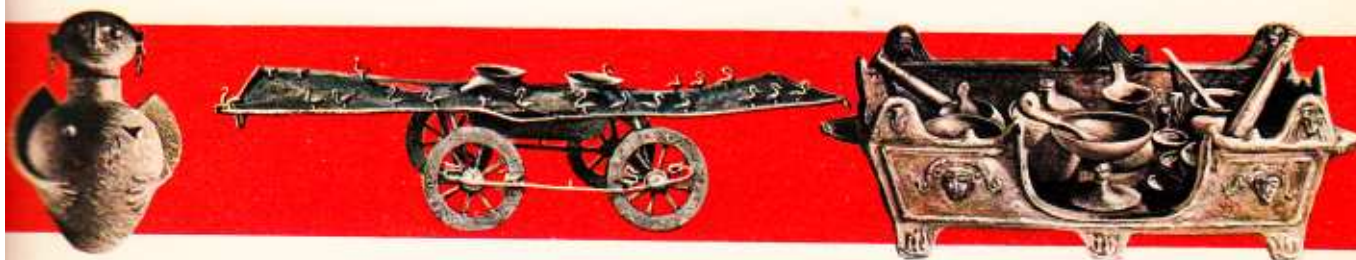


Etruscan goldsmiths and some of their products: vase, earring and brooch.

loose about their shoulders or gathered up in a mass on top of the head. When attending dances, banquets or public festivals they wore blond wigs. Favourite pastimes included music-making, hunting and wildfowling. It seems possible that these were sometimes combined, and that Etruscan wildfowlers lured their quarry by melodies played on a kind of double flute.

Although Etruria never ranked as a great sea-power, it certainly built and manned fighting ships as well as merchant vessels.

Left to right: Urn to hold ashes, bearing likeness of the deceased. Model carriage for carrying sticks of burning incense. Funeral utensil of earthenware, glazed and coloured to resemble metal.





Late in the sixth century B.C., when the Etruscans were at the height of their power, they joined with the Carthaginians, and helped them to win an important naval victory over the Phocaean Greeks, off the island of Corsica. (Both Carthage and Etruria were probably alarmed by the fact that the Greeks of Phocaea, in Asia Minor, had founded the colony of Massilia, now Marseilles, at the western end of the Mediterranean.) However, in 474 B.C., some sixty years after its victory over Phocaea, the Etruscan fleet was destroyed in a battle against Syracuse, in Sicily. From that time onward, while Roman influence rapidly increased, the power of the Etruscans steadily declined.

Naval clashes between Etruria and other lands were comparatively rare, but peaceful sea trade went on regularly. From Carthage and Phoenicia the Etruscans bought fabrics, glassware and ornaments of ivory; from the Greeks they bought splendid vases and other items of pottery, many of which have been found in Etruscan tombs. For export they could offer agricultural produce, jewellery, articles cast in bronze, and one material that was specially precious in the ancient world – iron. All these were things in which they specialised.

Reconstruction of Etruscan temple.



They found rich deposits of iron ore in the island of Elba, only a few miles away from the port of Populonia, and quickly became expert at smelting it. Their method was to crush the ore and build up heaps consisting of alternate layers of wood or charcoal and ore. They then covered the entire heap with clay, leaving only a small gap at top and bottom. Next they set light to the bottom layer of fuel, and as the temperature built up inside the heap molten iron trickled down into moulds dug into the earth at the base. To get the fire well started they probably had to use bellows. The outer layer of clay then served two purposes. First it kept air away from the hot fuel, so that it took oxygen out of the iron ore and reduced it to pure iron. Next it prevented the escape of heat, so that the iron reached melting point.

Because iron rusts easily, the Etruscans used it only for tools and weapons, where hardness was the main consideration. This left them with a large surplus, most of which they exported in the form of ingots, or what we would now call pig-iron. For vessels and decorative articles they preferred the softer metal bronze, which did not so easily tarnish; and besides hammering it to shape they also became highly skilled at casting it in moulds. Perhaps even more remarkable was the skill of Etruscan gold workers, who knew the technique of filigree. This consists of reducing the precious metal to fine wires, then interlacing the wires to produce delicate patterns. Goldsmiths also made necklaces of tiny gold balls joined together.

Familiarity with the properties of metals, and practice at working them, enabled Etruscan craftsmen to hit on certain new and ingenious devices. One was the safety-pin, of which several examples have been brought to light during the excavation of their cities. Another was remedial dentistry, for the Etruscans discovered how to fill decayed teeth and protect them by fitting gold caps.

No civilisation can exist without an adequate and assured food supply, and the people of Etruria were good farmers. They



cleared forests not only to supply themselves with fuel and ships' timbers, but also to make way for fields. They drained the low-lying marshy lands near the coasts by cutting networks of ditches and canals. Where rainfall was low, they constructed extensive irrigation works to supply water to the land.

Deeply religious, the Etruscans felt compelled to learn the will of the gods before undertaking any important action. Since their gods were gods of nature, they could be expected to make their will known through such natural happenings as thunder, lightning, winds, the formation of clouds, and the flight of birds across the sky. But the hidden meaning of these commonplace events, the Etruscans believed, could be properly interpreted only by professional wise men, the augurs, who had made a study of the sacred books called the Books of Fate. There was also a special class of augurs who divined the will of the gods by examining the livers of animals newly sacrificed on the altar. During the excavation of Etruscan sites archaeologists have found terracotta models of the liver inscribed with the various predictions

that could be made from its appearance. One such model is marked out into several sections each inscribed with the name of a god.

The three chief deities were Tinia, Uni and Minerva, and every Etruscan temple contained three different sanctuaries, so that each could be worshipped separately. In addition to the three great gods there were many lesser ones: twelve represented the twelve signs of the zodiac; seven represented the sun, the moon and the five known planets; and a further sixteen were believed to control various areas of the heavens. With such a multitude of divinities it is no wonder that the ordinary busy citizen felt bound to consult professional augurs to learn their wishes.

The practice of augury, and especially liver-divination, spread beyond the confines of Etruria into Latium, and long played an important part in the state religion of the Romans. The somewhat heavy-looking Etruscan temple, probably based on the Doric temples of the Greeks, also had a considerable influence on early Roman architecture, as did the Etruscan arch. Several of

Below right: "Tomb of the Chairs," at Cerveteri. Left: Modern archaeology uses modern techniques. Aerial photographs reveal sites of burial grounds; next holes are bored in the ground and periscopes with powerful lights lowered into cavities. When anything of interest is revealed excavation begins.





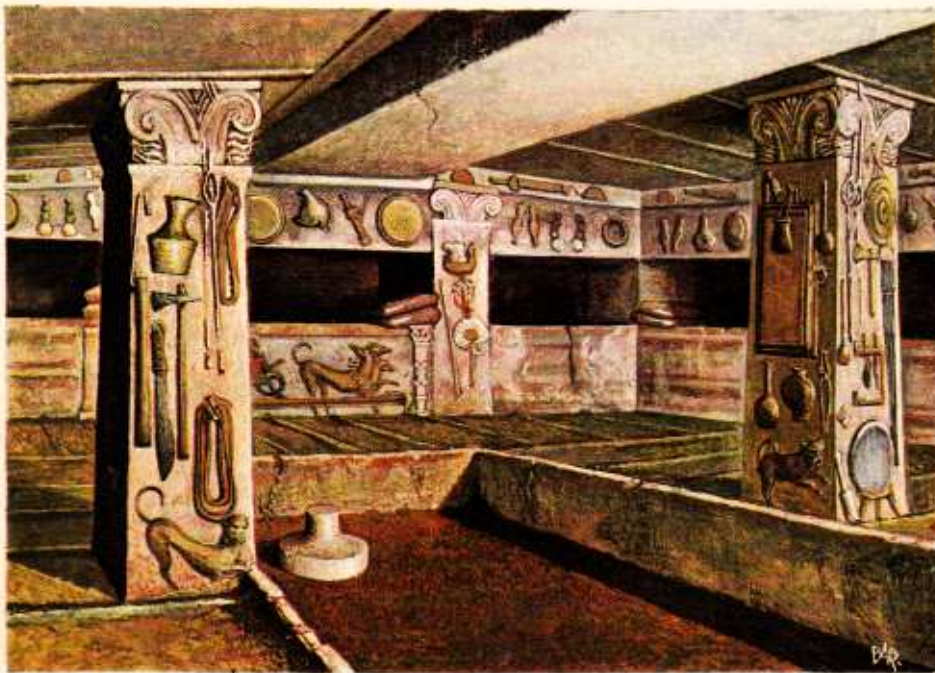
the Etruscan gods also found a place in Roman worship.

Their religion, and their belief in a life after death, compelled the Etruscans to give special care to the dead. At the burial ceremony ritual games were played and ritual dances performed. The tombs, outside the city walls, were often hewn out of solid rock. And since people believed that the tomb would be inhabited by the dead man's living soul, they were careful to give it as much resemblance as possible to his old home. For the wealthy, at least, the walls of the burial chamber were often adorned with brightly coloured paintings, or covered with plaster reliefs, some of them picked out in colour, representing weapons and domestic utensils. On the stone coffin the dead man's likeness was carved, and near it were placed many of the familiar possessions such as jewellery

that he had valued most during his life.

Because writings can so far tell us little about the houses and domestic arrangements of the Etruscans, these tombs, which can tell us a great deal, are of special interest to archaeologists. A number of them have already been excavated, and numerous mounds just outside several ancient towns make it clear that there are many more awaiting excavation. But archaeological digging is skilled, costly and time-taking, and they cannot all be tackled at once. In order to decide whether or not a tomb is particularly worthy of examination, archaeologists bore holes into it from above. Then they lower down powerful lights and a periscope. If they see anything of special interest, such as a wall painting, a stone coffin, or articles of skilled workmanship, the burial chamber is opened up and excavation begins.

Inside the "Tomb of the Painted Reliefs." Believing that the spirit continued to live within the tomb, the Etruscans made their burial chambers as nearly as possible like their houses. Here the walls are covered with painted stucco reliefs depicting the kinds of utensils and ornaments that were in normal domestic use.





## THE ROMANS

At the time when the Etruscans controlled northern Italy and the Greeks southern Italy, there were several other less powerful and less highly cultured peoples sandwiched between them. Among them were the Latins, who lived just south of the River Tiber. These were the people we now know as the Romans, and it was they, not their more powerful neighbours, who eventually carried civilisation as far west as the coast of Portugal and as far north as the Firth of Forth. They also spread their rule southward and eastward, gaining dominion over lands which had earlier been pioneers of great civilisations, including Egypt, Crete, Greece, Phoenicia, Asia Minor, Mesopotamia, and North Africa.

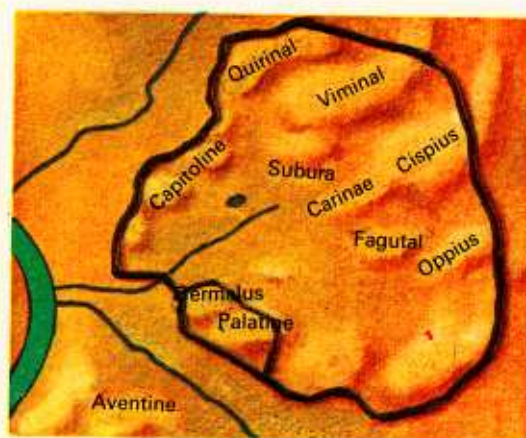
The Romans were quick to learn from the many cultured peoples they conquered, quick to blend imported ideas together into a single Mediterranean civilisation, and quick to spread that civilisation to large areas of Europe far removed from the Mediterranean. To conquer they had to build up a large, well organised army; to blend ideas from many civilisations into a single whole they had to learn great tolerance; and to hold a vast empire together they had to establish and administer wise laws and sound justice.

All these were mighty achievements, yet they began in a very small and humble way. At the beginning of the eighth century B.C. the Latins were a tribe of simple shepherds and farmers, though later on, as their fortunes rose, they provided themselves with legends to make their origins appear more exciting. According to these stories, the Trojan prince Aeneas, after fleeing from the siege of Troy, married a daughter of the king of Latium; some centuries later two of his descendants, Romulus and Remus, founded a city near a ford across the River Tiber. In honour of Romulus, the more worthy founder, that city was named Rome.

The traditional date for the founding of the city is 753 B.C., and for more than two centuries after that it was ruled by kings. The map below, which has a scale of more than one inch to the mile, shows how small it remained while it was a kingdom. Legend has it that seven kings ruled over it in turn. If their doings were ever written down in detail, the record has been lost, and we know little about the first four. However, it seems likely that at some time the little Kingdom of Rome came under the control of Etruria, for the remaining three kings were almost certainly Etruscans. But by 509 B.C. Etruscan power was waning, and in that year the Romans rose against their last king, Tarquin the Proud, expelled him, and set up a republic which lasted almost until the time of Christ.

Between the founding of their city and 300 B.C., sometimes fighting alone and sometimes in alliance with other cities that had shaken off Etruscan rule, the Romans steadily conquered neighbouring tribes and peoples. These included the Sabines, the Aequi, the Volsci, the warlike Samnites, and the Samnites' allies, the Umbrians and the weakened Etruscans. By 300 B.C., then, the

Roman territory in the early days of the monarchy.

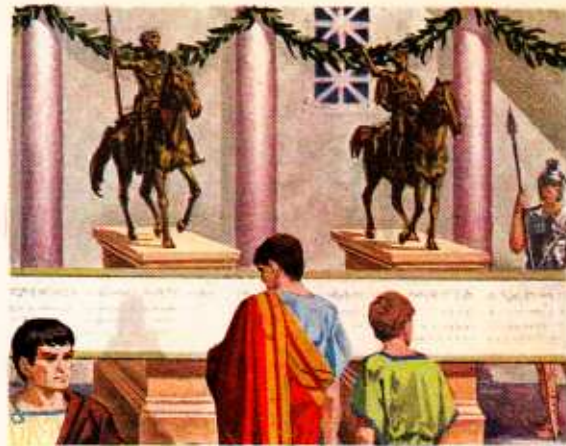




Romans were masters of all central Italy. Twenty-five years later, in a war against the Greeks of southern Italy, they defeated the forces of King Pyrrhus, and thus completed their mastery of almost the entire Italian peninsula.

But Rome was not the only city whose power was rapidly growing at that time. Carthage, near the site of modern Tunis, had long since ceased to be a mere Phoenician colony. It had colonies of its own along parts of the coast of Spain, possessions in many of the large Mediterranean islands, a powerful fleet, and almost a monopoly of sea trade in the western Mediterranean. After the defeat of Pyrrhus, Rome and Carthage could not both go on expanding without coming into conflict. In 264 B.C. some of the people defending a Sicilian town against the Tyrant of Syracuse asked help from Carthage, while others appealed to Rome. The Carthaginians were first on the scene, but the Romans drove them out; and that was the

A slave receives his highest possible reward. As he kneels, his master touches his head with a rod and says, "I wish to free this man."



Decrees of the magistrates were posted in a public place where all citizens were able to read them.

signal for the first of the conflicts to begin.

All told there were three, and since the Romans described all things Carthaginian as Punic they are called the Punic Wars. The first began in 264 B.C. and the last ended in 146 B.C. In each Rome was the victor, though the Second Punic War was particularly hard-fought, and at one stage the Carthaginian general Hannibal was almost at the gates of Rome. By the time the third war ended Rome had stripped the Carthaginians of all their possessions in Spain and the western Mediterranean islands, burned their capital to the ground, and made the area around it a Roman province. During and between the Punic Wars, Roman troops also fought in other lands, conquering Greece and Macedonia.

Less than a century after the destruction of Carthage, three remarkable men – Julius Caesar, Pompey and Crassus – managed to seize all political power in Rome. As a result of the quarrels that later arose between them and their followers, civil war broke out, and the Roman Republic became doomed. Yet even during that troubled century Rome went on expanding at a tremendous rate: Gaul (modern France), large areas of Asia Minor, Syria, Cyprus, Crete, Egypt, and





A senator wearing the *laticlavium* (toga with stripe) which proclaimed his office. The *fasces* (axe and rods) symbolized the power to punish, and was carried by lictors.

large stretches of the North African coast came under her control.

Eventually the civil war ended, but what had formerly been the Roman Republic now became the Roman Empire. Its first emperor, though he shunned the title, was Julius Caesar's great-nephew, Octavian, later known as Augustus, who ruled from 27 B.C. to A.D. 14. Under him and a long succession of other emperors, Rome conquered yet more lands – large parts of central Europe, much of Britain, and the whole of Mesopotamia. Roman rule provided much of this widespread empire with long periods of peace and sound government. But after a few centuries it was evident that Rome had strained her resources too far. More than once it became necessary to share the government between two emperors, each with his own court and capital. Even so, as hordes of barbarians threatened the empire from north and east, they could eventually be held at bay only by enlisting other barbarians and near-barbarians in the Roman army. Finally the pressure became too great, and by A.D. 476, after much of the Empire had already collapsed, Rome itself was overrun, and the last boy-emperor to hold power, Romulus Augustus, was deposed.

In the early days of the Roman Republic, when the powers of the banished king were put into the hands of two annually elected consuls, the population of Rome was divided into three classes: patricians, plebeians and slaves. Only the first, who claimed to be descended from the original founders of the city, had any political rights. They alone could serve in the senate, while in the law-making body, the assembly, they held a permanent majority. They were also solely responsible for electing the consuls.

Craftsmen, merchants, clerks and farmers all belonged to the ranks of the plebeians. Although free men, they were second-class citizens with no say in the running of the city. Nor were they allowed to take any share in the state religion, or to marry into patrician families.

The slaves, who did all the hard manual work, as household servants, semi-skilled tradesmen working under masters, or labourers on country estates, were simply living possessions, to be disposed of as their owners wished. They could not own property, contract legal marriage, or claim protection from the law, however cruelly they were treated. Some were born of slave parents, others had been deprived of citizenship by



way of punishment, and yet others were children who had been kidnapped or sold into slavery to pay debts. But many – possibly most – were prisoners of war. The Romans considered that an enemy defeated in battle had forfeited his right to live; to allow him to be sold as a slave instead of killing him was therefore regarded as an act of mercy. The worst punishment that could be inflicted on a slave was to throw him to the wild beasts at the circus to provide a public spectacle. The highest reward for faithful service was to touch his head as he knelt, and, before witnesses, to utter the words “I wish to free this man.”

The down-trodden slaves, who met each other only in small numbers, on the same estate or in the same household, had little chance of banding together to get their grievances remedied. The under-privileged plebeians, however, were free to mingle and work in unison, and there were a great many of them. So the ill feeling which existed between them and the small, select band of patricians sometimes flared into action. Inevitably, the patricians were slowly obliged to give up their exclusive privileges and to grant reforms.

The first step came in 494 B.C., when the plebeians moved in a body to one of Rome's hills and refused to return until certain legal rights were granted them. They were then allowed to elect their own representatives, the tribunes of the people, who could intervene to save any plebeian from being unjustly treated by a magistrate. Later the tribunes were admitted into the senate, and there they had the power of preventing the passage of any law or decree to which they strongly objected.

Next, in 451 B.C., the plebeians demanded to have the laws of Rome put into writing, so that everyone would know that justice was the same for all men. The patricians appointed ten men (*decimvirs*) to do so, and within a year they had drawn up a code known as the Twelve Tables. These formed the basis of Roman law for the next three

of four centuries. Gradually more and more public appointments were opened to plebeians, and in 367 B.C. it was even possible for a plebeian to become a consul. Finally, in 286 B.C., all resolutions passed by the Popular Assembly (*concilium plebis*) were given the force of law.

The last event, which came about as Rome was completing her control of Italy, abolished the remaining legal differences between patricians and plebeians, though differences of wealth and influence still remained. All free-born inhabitants of Rome now enjoyed the right of full citizenship, a privilege which distinguished them from subject peoples. “I am a Roman citizen” was a proud claim and one that commanded respect wherever the Romans ruled; for the Roman citizen could appeal against any unfair decision of petty officials to the Popular Assembly, and whatever offences he committed he was exempt from torture.

By the time the plebeians had achieved political equality with the patricians, the

Legionary with short sword (*gladius*) and a rectangular shield (*scutum*).







Left: Wheeled tower to help besiegers to scale enemy ramparts.

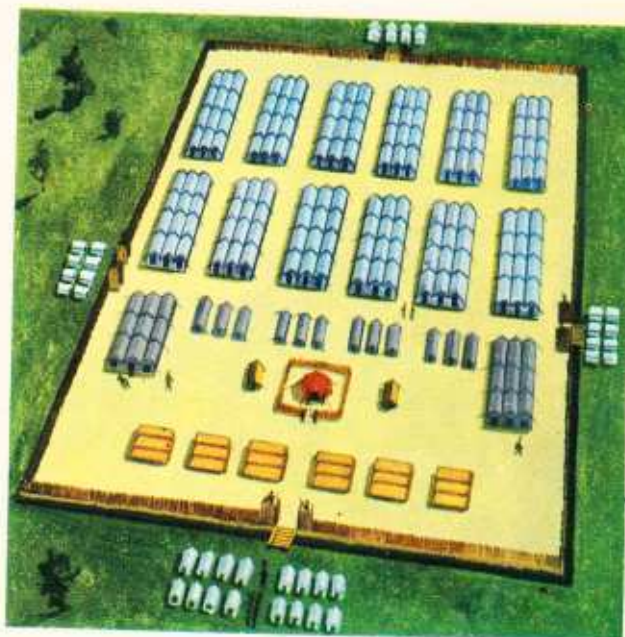
Right: Roman troops interlock shields, forming a "tortoise" to protect themselves against missiles fired from the defence walls of a town. Awards were given to the first man to mount the enemy earthworks and to the first man to scale the walls.



Romans had developed a clear distinction between three different sides of government. These were law-making (legislative power), applying the law (executive power), and making judgments in cases where the law had been broken, or was alleged to have been broken (judicial power). These three forms of governing power are still recognised throughout the civilised world today, and most countries take care to see that they are not all in the hands of the same officials.

In the Roman Republic the supreme executive power was in the hands of two consuls, who held office for one year and ruled jointly. They also commanded the army. They were escorted by a bodyguard of lictors, who carried the *fascēs* – bundles of rods wrapped round axes to symbolize the power to judge and punish those who transgressed the law. But although in theory the consuls possessed judicial as well as executive authority, the power to decide lawsuits soon came to be wielded mainly by two praetors who acted as chief judges, one made decisions in domestic cases and the other acted in cases involving foreigners.

Wherever troops halted for the night they built a camp. It was always rectangular and enclosed by a ditch and a fence of stakes. There was a gate at each side, and clear roads were left between the neat groups of huts. In the open space before the general's tent, troops could assemble to hear their orders.





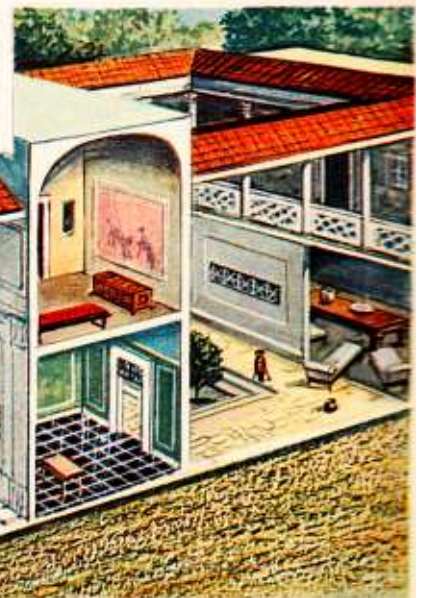


The house of a wealthy Roman. In the foreground is the *atrium*, or hall. The rectangular pool in the centre collects rainwater let in through the opening in the roof. Beyond the lady seated in the reception room is the *peristylum*, a garden enclosed by a colonnade.



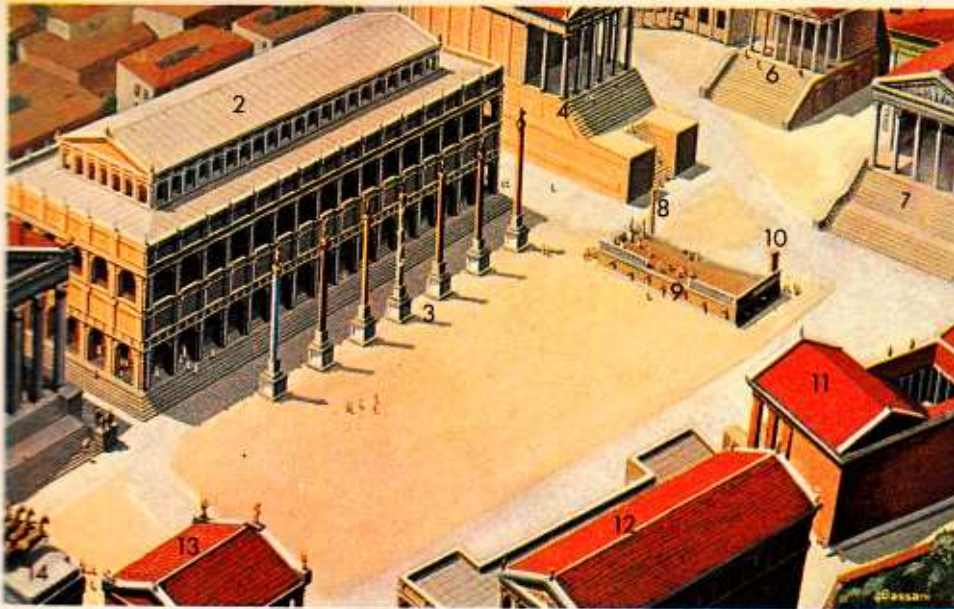
At banquets the men reclined; their wives were seated.

Roman villa (sectional view).



Kitchen with brick-built oven.





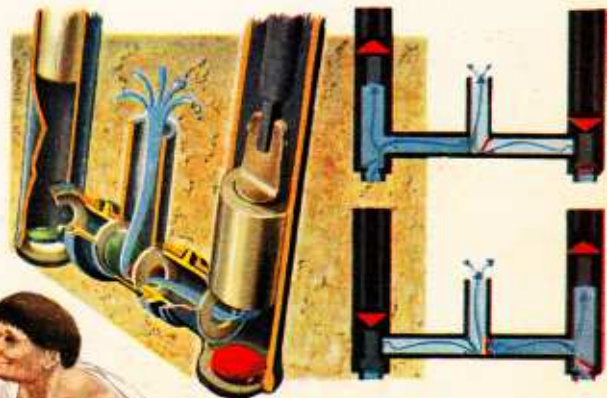
#### Reconstruction of Roman Forum

1. Temple of Castor and Pollux
2. Basilica Julia
3. Commemorative columns
4. Temple of Saturn
5. Porticus Deorum Consensium
6. Temple of Vespasian
7. Temple of Concord
8. Gilded milestone showing distances to main cities of Empire
9. Rostra
10. Umbilicus Romae, marking centre of city
11. Curia, meeting place of the senate
12. Basilica Aemilia
13. Temple of Julius Caesar
14. Arch of Augustus

Aqueduct cut away to show covered conduit that carried the water. Below: The main sewer of ancient Rome, the Cloaca Maxima.



Flask to hold sweet-smelling oils applied to the body before exercise, and strigil, used to remove the oils before bathing. Below is a Roman public bath.



This pump had two valves that opened and closed alternately. Water was drawn up by each piston in turn, and discharged through the pipe at the centre.



Among the important executive officials were censors, aediles, and quaestors. The two censors were elected for five years, and so great was the prestige of the office that it was often held by an ex-consul. The duty of the censors was to draw up a list of all citizens and to assess the value of each man's property so that taxes could be levied fairly. They were also empowered to watch over public morals, and to appoint senators. The aediles – at first two and later four – had charge of public buildings, roads, and other public works. Quaestors kept a rein on public spending.

After 286 B.C. the legislative power, which had formerly been in the hands of assemblies dominated by patricians, passed to the Popular Assembly. Yet the senate, whose members were appointed for life from among the most worthy and experienced citizens, had a special duty, which was to exercise general supervision over all the powers of the state – legislative, executive, and judicial. At first only patricians could become senators, but later plebeians were also eligible for appointment. The senators were, in fact, the real rulers of the republic. Their authority was such that no official dared to reject their advice or instructions.

Mock naval battle being staged at the Colosseum. Special devices enabled the arena to be flooded within a few minutes.

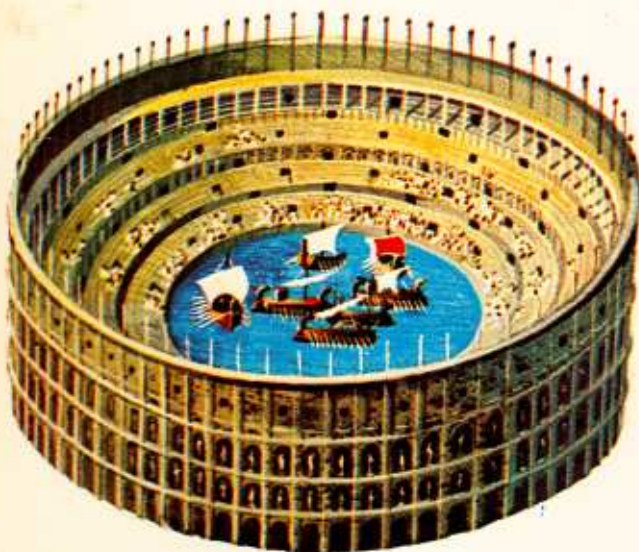
Gladiator's helmet.



Declarations of war, the making of alliances, and the overall control of state spending were all matters on which the senate had to decide. In time of national peril that august body would issue its most solemn decree, proclaiming martial law, suspending all officials from office, and nominating a dictator to hold supreme authority throughout the state for six months.

When the Roman Republic gave way to the Roman Empire, the emperors gradually gathered up nearly all political power into their own hands, taking over the executive authority of various officials, putting forward their own laws for the senate to approve, and then enforcing those laws and punishing people who broke them.

The instrument by which the Romans spread their rule and their ideas on government to a very large part of the known world was their army. From the beginning the inhabitants of Rome must have been well-disciplined fighting men; otherwise they could never have held out against the powerful Etruscans whose territory lay only a short distance away across the River Tiber. In the early days the army consisted of three thousand citizens – the *legio*, or legion – divided into three separate regiments, each under its own commander and each supported by three hundred cavalry. The whole force was commanded by the king.





Although the army grew in size as time went by, the legion continued to be the largest unit. At first the soldiers fought in phalanx formation: five hundred men in the front line, and five equal ranks behind them. Later the *cohort* (one-tenth of a legion) became the fighting unit. Each legion had its own number and its own standard, a silver eagle. Originally all citizens between 17 and 45 years of age were liable for military service, and men up to the age of sixty could be called upon in case of emergency. All recruits took an oath of allegiance, first to their general, and at a later date to the Emperor. They received a small wage, and after fighting in a certain number of campaigns they were permanently discharged. Discipline was very strict, and harsh punishment awaited those who failed in their duty.

All the legionaries carried the same weapons – a short sword for hand-to-hand fighting, and two javelins. Their armour consisted of a helmet, a rectangular shield, and a greave worn on the right leg. The cavalry had lighter shields and lances; their task was to survey the land, engage and pursue the enemy's horsemen, and harry enemy foot soldiers when they retreated.

The legionaries carried their own rations and personal equipment, tools for digging, and stakes for making a palisade around the camp. So well trained were they that on halting for the night they could dig the

ditches, erect the palisade, and put up the tents all in a very short time. For attacking fortified towns they had various siege engines. To avoid being struck by enemy arrows from above when assaulting the walls of a fortress, the soldiers would form what they called a *testudo* (tortoise-shell). Those in the front held their shields in front of them, those at the sides held them on their exposed flank, and those in the centre supported their interlocked shields above their heads.

At the outbreak of the First Punic War, in 264 B.C., the Romans had practically no fighting fleet, but they very quickly built one, and four years later they won an important naval victory over the experienced seafaring Carthaginians off the north coast of Sicily. Indeed, it seems that the Romans enjoyed fighting in any form, and excelled at it. At about the same time as Rome's first fleet was being built, gladiators became popular in the city, and remained so for hundreds of years. These men fought as professional entertainers, sometimes in single combat, sometimes in teams, sometimes with swords, sometimes with net and trident. They fought on foot, on horseback, or in chariots; and they fought wild beasts as well as each other.

In A.D. 80, Rome's magnificent amphitheatre, the Colosseum, was completed. It was used not only for stupendous gladiatorial shows; its arena could also be quickly

Chariot race at the Circus Maximus.





flooded in a few minutes to allow mock naval warfare to be staged.

To the Romans then, fighting was not an activity that could be justified only by the stern necessity of war; to many it was a positive source of pleasure. Such a taste could easily become a plain love of cruelty, and unfortunately this often happened, especially under the early emperors. Under Augustus (27 B.C. – A.D. 14) thousands of lions, tigers, elephants, leopards, rhinos, and hippos were slaughtered in the arena to the applause of the crowds. Throwing army deserters to wild beasts was by then already fashionable, and meting out similar treatment to the early Christians very soon became popular.

Yet it was not part of Rome's policy to govern conquered peoples by cruelty and oppression. Indeed, such a policy would not have worked, because the conquered far outnumbered their conquerors, and cruelty would have forced them into revolt. In general the Romans heeded the advice which the poet Virgil gave them in the first century B.C.: "Rome, remember that your task is to govern the world. Your calling is to impose peace upon all, to treat kindly those who submit to you, but to fight to destruction those who will not yield."

So it was that once the Romans had taken control of a country by force of arms, they next introduced good administration and the rule of law, appointing over each province a governor responsible to the senate. At the

same time they granted some measure of local independence, and offered citizenship to most of their leading ex-enemies. Veteran soldiers were rewarded by grants of land in conquered countries, and as they settled there with their families they introduced Roman customs and spread Mediterranean civilisation. Even in provinces that had formerly been barbarian, fine cities grew up on the Roman model, complete with statues, law courts, public baths and temples.

Although the Romans had their share of poets and playwrights, artists and sculptors, they made their mark on the world mainly as organisers, administrators, and civil engineers. Without civil engineering on the grand scale their vast empire could never have been held together. As it was, distant parts of Europe and western Asia were connected by a great network of fine roads. These enabled the legions to march rapidly from place to place to deal with disturbances or meet threats of invasion. They also made it possible for merchants to transport goods from city to city, and for couriers to carry messages quickly back and forth between the capital and the provinces. Roads were carried across rivers on magnificent stone arches, and through mountains, by tunnels. Aqueducts, some of which have survived to our own time, brought water supplies to many cities. To Rome itself eight of them carried millions of gallons of fresh water each day. It is no wonder the Romans asked "Who dares to compare our mighty aque-



Right: Children forget hoop and stick in excitement of racing a chariot drawn by tame mice.



Left: Child's doll and top.



Right: A public library, the "books" being papyrus rolls.  
Below: Compass, parchment roll, pen and inkwells.



ducts with the useless pyramids of Egypt?"

Public buildings making full use of the arch and the vault, were elegant as well as impressively large. At the time of the Empire the Roman Forum was surrounded with temples of marble, commemorative columns, and gilded statues, while in other parts of the city there arose circuses and theatres, basilicas and baths.

Baths – especially public ones – were an important feature of city life. The great *thermae*, such as the baths of Caracalla or Diocletian, were gifts from the emperors to the people, and were open to all citizens on payment of one *quadrans* – the Roman farthing. Beyond the vast hall, where clothes were left in charge of a slave, there were bathing facilities of several kinds. They included hot baths, with pools and basins heated by a furnace in the basement, a warm room, and cold baths for those who wanted them. Other rooms were available for refreshments, gymnastics and games, and outdoors there were swimming pools and pleasant gardens.

Particularly during and after the first century A.D. the circus was also a famous institution – a place where men fought men, animals fought animals, and men and animals fought together. But there were other entertainments, too. In the *Circus Maximus*,

which could seat as many as a hundred thousand spectators, chariot racing took place regularly, with four teams competing in chariots drawn by two or four horses. Each team – the reds, the greens, the whites and the blues – had its own crowd of enthusiastic supporters.

At the height of her prosperity Rome could boast thousands of sumptuous villas, where her richest citizens lived. From the outside they looked plain and unpretentious; all the magnificence was within. In the centre was the *atrium*, a kind of covered courtyard from which the other rooms led off. The general layout thus followed the traditional plan of the Mediterranean house, except that the open courtyard, because of the climate, gave place to a covered one. At a later date the rich added a second courtyard, open to the sky and surrounded by a colonnade, which served as a kind of garden. This was called the *peristylum*. The most important room in the house was the dining room, where the Romans would feast, stretched out on couches arranged around the table. Homes of this kind were often equipped with a central heating system, in which hot air from a fire in the basement circulated beneath the floors, but this was a late development. Until the second century A.D. the means of heating was by charcoal





1. Boy in *toga praetexta*, with purple hem. 2. Man in plain toga, mark of the adult citizen. 3. Matron wearing the *stola*, and over it the shawl-like *palla*. 4, 5. Men's hats. 6. Heavy cloak of wool or leather for use in the country. 7. Women's hairstyle of first century A.D. 8. Seal of the Emperor Augustus 9. Brooch and medallion. 10. Costume of ancient inhabitants of Latium. 11. Sandal worn by soldier. 12. Civilian footwear.



braziers. City houses, however splendid, rarely had their own baths, for people preferred to visit the *thermae*.

No city, ancient or modern, has ever housed more than a small fraction of its citizens in this grand manner. The humbler people of Rome and other great cities of the empire lived mainly in blocks of apartments, sometimes three storeys high. The rooms were cramped, and the entire building was liable to collapse or catch fire.

Family ties were strong among the Romans. The father was both ruler and priest, and in early times held the power of life and death over all members of the family. He was also a kind of domestic chaplain, who made sacrifices to the household gods, and to the goddess Vesta, who watched over the hearth and the home. The Roman woman was never allowed to own property. While single she was under the guardianship of her father, when married under the guardianship of her husband. At table, while the husband reclined, she remained seated; and she was expected to be obedient to him in all things. But these customs did not mean that the family regarded her as an inferior. She supervised the work of the domestic slaves, had charge of the smooth-running of the household, and was highly respected by her children.

Children were reared with care, but not spoiled, and received their early training from their parents. In the days of the Republic every father would instruct his sons and accompany them in religious ceremonies, but later on this task was handed over to tutors. When they were old enough, the children learned to read and write in small classes under a paid teacher; they also had to learn the Twelve Tablets of the law by heart.

Following the conquest of Greece, education and culture began to be more highly valued and boys continued their education under a *grammaticus*. He gave them a grounding not only in the languages of Greece and Rome but also in the literature, especially poetry. Music, astronomy, and philosophy

were also part of the curriculum. Keen and wealthy students sometimes pursued their studies abroad, at Athens or Alexandria, the centres of Greek learning.

Sports and games were popular among Roman youths, who frequented the gymnasias attached to the baths for practice in running, jumping and wrestling. Riding, driving and swimming in the Tiber were other favourite pastimes. Strenuous exercise



Steelyard with weights.

Two types of flour mill, both turned by asses.

Olive press.



of this kind, always followed by a bath, was a good preparation for the military life which young men hoped to take up. They knew well that an army career of at least ten years was essential if they hoped to gain high public office in later life.

Girls, who expected later to run a home and rear a family, were brought up and trained by their mothers. Often their parents arranged their marriage while they were still very young. During the betrothal ceremony a straw was broken between the families of the bride and bridegroom to-be, as a pledge of their agreement to the arrangement. At the marriage the bride, whose hair was arranged into six locks with an intricate comb, wore a special dress and a flame-coloured veil. After prayers had been said and offerings made to the gods a banquet was held. Then the bridegroom had to carry his bride over the threshold of their future home, since it would have been considered a bad omen if she stumbled.

Roman attire was marked by simplicity. In the house and at work men wore the

*tunica*, a kind of long shirt, belted at the waist, that reached to the knee. The garment worn by all citizens in public was the *toga*, a large piece of woollen material which covered the left shoulder and was draped about the body, leaving the right arm free. Senators could wear the *laticlavium*, a toga distinguished by a broad purple stripe. Children wore the *toga praetexta* which had a purple hem. At the age of seventeen boys put on the ordinary toga, as a sign that they had reached manhood. The garment for women was the *stola*, a long dress reaching to the ground and elegantly pleated. Out of doors a pleated mantle, the *palla*, was worn over it.

The early Romans prided themselves on the sober and frugal lives they led, but as conquest after conquest brought increasing prosperity to the capital, their descendants adopted a far more luxurious way of life. So marked was the change that the almost puritanical patrician of the fourth century B.C. would scarcely have recognised the wealthy aristocrat of the late Roman Empire. The latter rose early in the morning to



Scene in a Roman tavern. Note how wine jars are shaped to slot into stands.





A Roman villa.

receive the greetings and flattery of poorer relatives, hangers-on and suppliers, to whom he distributed small baskets containing gifts of money and food. After discussing his business affairs, he would take a light breakfast of bread, honey, olives and cheese, and call for his litter-bearers to carry him to the Forum. About midday he would return home to take lunch, which might include vegetables, fruit, and a little meat. After a short rest he would probably depart for the *Campus Martius*, a fashionable place for taking exercise, and then go on to the *thermae* to take a bath and meet his friends. Towards the end of the afternoon, he would make his way home to enjoy the main meal of the day, consisting of hors d'oeuvres, meat, dessert, and wine.

The typical early Roman farm was small enough to be worked by a single family, using only the simplest implements – spades, forks, rakes, and wooden ploughs. Each family provided for nearly all its own needs, grinding its own corn into flour, baking its own bread, spinning and weaving its own garments, and making its own furniture. However, as prosperity increased and social organisation became more complicated, families ceased to be self-sufficient and small industries grew up to meet their needs. Once slaves became more plentiful as the result of foreign conquests, the way of farming also

changed completely. The work of tilling the soil was left to slaves, while the original peasant-farmers became the managers or owners of great estates.

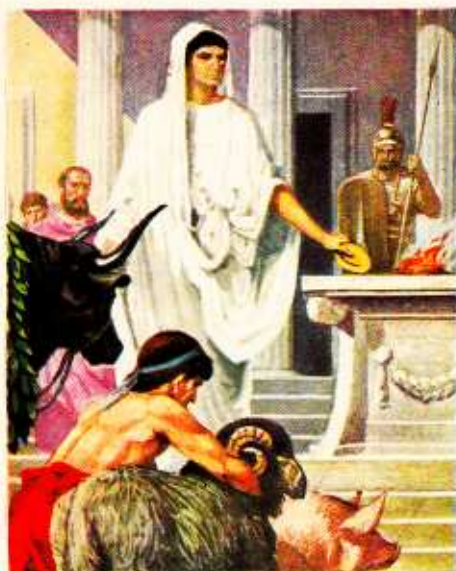
Because of their size and the cheap labour available, these farms were both efficient and profitable. Agriculturists also became very enterprising, introducing the peach from Persia, the cherry from the Black Sea coast, the olive and the fig from Africa, and the walnut from Greece. Industry developed in a similar way. As demand grew, the craftsman would enlarge his shop, take on slaves to assist him, and become the proprietor of a small factory supplying his wares to the whole neighbourhood. If they were of exceptional quality he would also send them to be sold in distant towns.

During the long years of peace, trade between Rome and her provinces flourished. Swift merchant ships arrived at Ostia, the port of Rome, from every quarter, bringing huge quantities of wheat from North Africa and Egypt, wine and olive oil from Spain, timber from the Lebanon, carpets and silks from the East, metals and raw materials from the West, and luxuries from as far away as India.

However greatly farming, manufacturing, trading, and living standards changed during the long course of Roman history, nothing changed more completely than men's



Animals ready for sacrifice.



Shrine to the lares, the gods who watched over the house and family, found in a house at Herculaneum. Right: a genius, the spirit who guarded a man, prompting his actions from birth to death.



attitude to religion. In the early days what counted most, perhaps, was personal or family religion. Each family devoutly believed in *genii*, or guardian spirits, who watched over certain places and certain individuals, and in the *lares* and *penates*, gods of the household. Most families had their own shrine where the head of the house made offerings to these divinities, and for those too poor to have their own altar, shrines were erected in public places.

But Rome also had its state religion, and as more and more lands were overrun, more and more foreign gods came to play a part in it. We saw earlier that many of the gods of Greece were adopted by the Romans, and given new names. So, too, were some of the gods of Egypt, especially Isis. There were also Etruscan gods and others. Perhaps this acceptance of new gods and new religious

ideas was part of Rome's tolerance, and helped to prevent religious differences from flaring up within the Empire. But eventually there were so many gods that people gradually ceased to treat any of them seriously.

Then came the beginnings of Christianity; and the heroic way in which the early Christians held to their faith despite all persecution led many thinking Romans to believe that this simple religion of one god for all men was far better than the old religion that had steadily lost its meaning. So it came about that before the Empire fell Christianity became established as the new state religion, with the city of Rome as one of its main centres. And when the Roman world collapsed under the weight of barbarian attacks the Christian Church survived, and somehow kept much of Roman civilisation alive for future ages.



## CIVILISATIONS OF THE NEW WORLD

For several centuries after the fall of the Roman Empire European civilisation badly declined, but the achievements and learning of ancient times were not wholly forgotten everywhere. Then, towards the close of the Middle Ages, there was a great upsurge of interest in all things Greek and Roman. Ancient writings were carefully studied in an effort to recapture the arts and science of antiquity and to build upon them. In the meantime contact with the Arabs, whose conquests stretched from the western fringe of India to the coast of Portugal, had introduced many new ideas from the East into Europe: a knowledge of paper-making and gunpowder from China, a new system of arithmetic and written calculation from India, and an increased knowledge of astronomy and navigational instruments from several areas. In addition to all this came the great German invention of printing from moveable type, which made books cheaper and easier to produce, and encouraged the rapid spread of learning.

So by 1492, when Columbus sailed to the New World, the men of Europe had inherited a great legacy of culture from many ages and many lands. In some respects, though not in all, they were more highly civilised than any people before them.

Columbus and the early pioneers who followed him across the Atlantic found in the New World men with a very different history. So far as we can tell from remains unearthed by archaeologists, human beings first reached America from the Old World by crossing the narrow Bering Strait, which separates the north-east tip of Siberia from Alaska. The first of them made the crossing at least twenty thousand years ago, during the Old Stone Age; the last of them, in all probability,

made it while the people of eastern Siberia had advanced no further than the New Stone Age. Once these migrants settled in America they were completely cut off from all later developments in the Old World. For them there was no legacy of culture from other peoples. They had to learn everything for themselves.

Over many centuries, as their populations increased, these people gradually spread over most of North America, to the Mexican plateau, through the tropical lowlands of Central America, and down through South America to its southernmost tip. Most of them – in the plains of North America, around the Caribbean, in the tropical forests of the Amazon, and in the grasslands of South America – continued always to live in scattered tribes, as primitive hunters and food-gatherers. All knew the use of fire and made implements of stone; most kept dogs, fashioned pottery and basket work, used bows and arrows or blow-pipes and darts, and made canoes. In short, when Europeans first met them, they were living much as our own forefathers lived some ten thousand years earlier.

But three groups of these New World peoples had somehow managed to build up civilisations entirely of their own making, all worthy of comparison with the civilisations of ancient Egypt or Mesopotamia. They were the Mayas of Central America, the Aztecs of Mexico, and the Incas of Peru. With the physical advantages of gunpowder, firearms and horses, the Spanish conquistadors of the sixteenth century reduced all these civilisations to ruins before Europeans had time to study them fully at first hand and perhaps learn from them. Only belatedly did our interest in them revive.



## THE MAYAS

In the Old World there were two main ways by which people could change over from hunting to settled farming: by keeping flocks and herds, or by growing grain.

In the New World there were plenty of bison, deer and antelope in various regions, but no cattle, goats or sheep of a kind suitable for domestication. Neither were there any horses, camels or elephants to be trained as beasts of burden. In fact the only animals that ever became domesticated throughout most of pre-Columbian America were dogs, turkeys and ducks; in the highlands of Peru

the sheep-like alpaca and the llama were also tamed, the latter being used to carry fairly light loads. Nowhere, then, was it possible to build a settled way of life solely on keeping animals. The only way was to grow crops.

The kinds of wild grass from which the peoples of the Middle East gradually developed wheat and barley simply did not exist in the New World. But there were other kinds which, when cultivated, gave rise to Indian corn, or maize. Because this gave good yields and stored well it became the main crop of America's first farmers.

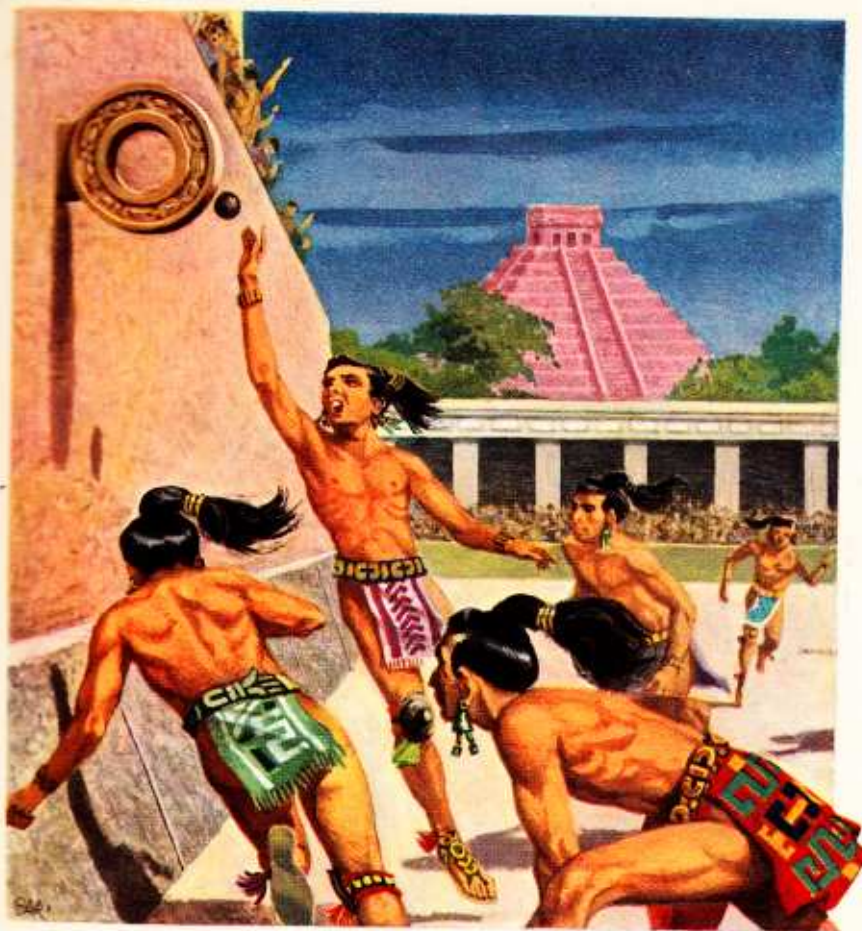
Archaeologists have found evidence that corn growing began in Mexico, and in lands just south of it, as early as 5000 B.C. However, in that region there was no great river which flooded annually and enriched the land with silt, as the Nile did in Egypt. So after the early farmers had grown crops in one place for a few years the soil became very poor. They then had to move into the surrounding forests, burn down trees to clear new land, and start all over again. Clearly they would have had no motive for building permanent towns and cities even if they had known how.

But as time passed, certain tribes accidentally hit on a method of keeping the land in good condition for longer periods. In the fields where they grew corn they also planted beans. Although they did not know it, the roots of beans enrich the soil by putting compounds of nitrogen into it. So by growing beans in with corn, farmers could keep a single plot of land in cultivation for a longer period. Equally important, they learned to manage the land in a new way. While one part of an area was under crops, a second part was left to lie fallow and revert to jungle. After a time the second part was cleared and replanted while the first part was left fallow. This practice enabled people to stay in one area for a very long time, and to begin building up genuine civilisations.

Mayan warrior, armed with wooden club studded with stones and carrying round shield of painted deer-skin stretched over wooden frame.







Mayan ball-game, rather like modern basket-ball.

That of the Mayas was by no means the earliest one, but it was probably the first to reach really remarkable heights. Before the Christian era began in the Old World, the Mayas had settled down in farming communities spread throughout the lands we now know as Guatemala and Honduras, as well as in the peninsula of Yucatan, which now forms the south-easterly portion of Mexico. They already knew how to grow enough food for the whole community without calling on everyone to do full-time agricultural work. As a result, there grew up among them a priestly ruling class who devoted their energies to spiritual matters, government, and intellectual pursuits. The great majority of people, who still worked in the fields, usually had time left over to

devote to various crafts, especially weaving and making pottery. Further, in the Maya region there was a long, dry winter period, when there was little that could be done on the land. During that season many people were set to work building cities and temples.

Archaeologists who study early American civilisations usually divide Maya history into two main periods. The first and more fruitful one, called the Old Empire, lasted until the ninth century A.D., flourishing in Guatemala and Honduras. Then, after a decline possibly caused by drought, invasions or civil war, there came a period of revival known as the New Empire, which lasted almost until the arrival of the first Europeans. During that period the Mayas lived mainly in the north of the Yucatan



peninsula, with their chief city at Chichen Itza.

Towards the close of the New Empire they were all united under a single government, but in earlier times they formed a number of separate city-states. Each city, with its surrounding territory, was self-governing, but all were linked in some kind of federation. Outside the cities people lived in small groups made up of a number of inter-related families, and were governed by a chief chosen for his age and experience. Nobody was granted absolute ownership of land, but the chief allocated plots to each family for its own use. The average plot, very long and narrow, covered nearly two acres. Day-to-day justice was administered by the *batab*, or provincial governor. A thief, unless he restored all that he had stolen to its rightful owner, could be enslaved. More serious crimes often carried the penalty of death.

Village life was simple. During the dry season many of the men would go on hunting and fishing expeditions. Others would visit nearby cities to buy and sell various goods. The main agricultural work for men consisted of clearing the fallow fields of undergrowth, then walking across them in straight lines, prodding a stick into the ground at every step to make a small hole. Behind them followed the women, who dropped a corn seed into each hole and loosely covered it with soil. Beans, planted in the same fields, would later be supported by the growing corn stalks. Other crops included cassava, sweet potatoes and peppers, as well as cotton to be used for clothing and sisal for making ropes. Children helped, perhaps, by scaring away birds and weeding during the growing season, and giving their mothers a hand with the hoeing. The ripe corn was cut by sickles with blades of stone or obsidian (a hard dark volcanic rock) attached to wooden handles. Indeed, almost all tools and weapons were made of these materials because the Mayas never discovered the use of metals for themselves, and it was only very late in their history, after they came under

the influence of Toltecs from the north, that they learned to work with gold and copper.

The village was usually built in the shape of a square, three sides being lined with huts – one for each family – and the fourth side occupied by the temple and the big houses belonging to the chief and the priests. Each rectangular hut, raised on a low platform of stones, had walls of reeds attached to upright posts and a steeply sloping roof of reeds and palm leaves. The temple, which was no more than a small room containing an altar, stood on top of a fairly big step-pyramid built of stone or cement, often painted in some bright colour. A steep stairway up one side of the pyramid led to the temple door.

Men usually wore only a white cotton loin cloth, women a wrap-round skirt of the same material. But more elaborate costumes were certainly not unknown. When playing ball games (one of which was rather like modern basket-ball) men sometimes wore coloured and patterned loin-clothes; they also wore a knee-cap on the right leg and a bracelet on the right arm. Tunics or cloaks were common among wealthy men, and their wives often dressed in ground-length robes. Chiefs and warriors were distinguished by costumes and headdresses elaborately decorated with feathers.

The places where Mayan civilisation left its most enduring marks were a number of big cities, such as Copan and Chichen Itza. After the Spanish conquest all these cities were deserted and became completely buried in jungle growth, but in the past century several of them have been cleared and partially restored. Pyramid temples of gigantic size have come to light, built of stone and mortar, and faced with intricate and beautiful carvings. In village temples the ritual was simple, the priests did little more than blacken their faces before burning copal on the altar in worship of the rain gods. In the city temples the priests were of a higher order; they dressed in long white robes heavily bedecked with feathers, and offered up sacrifices of jade and tobacco smoke, and



on rare occasions even a human being. Before buying and selling started in the nearby market place, they would also perform a kind of ritual play in honour of the gods.

These priests had almost a monopoly of education and learning, and it was they who were responsible for the amazing progress which Mayan civilisation made in astronomy, arithmetic, and recording information. By constantly observing and recording the position of the sun in the heavens they discovered that the exact length of the year is very slightly less than  $365\frac{1}{4}$  days. Their calendar was therefore more accurate than the old Julian calendar of Europe, which was not reformed until 1582. They also worked out a system of arithmetic based on

nineteen symbols – one for each number from one to nineteen – and a zero sign. This made it possible for them to add, subtract, multiply and divide, without relying on the abacus, as Europeans had to do until the late Middle Ages. They had even developed a kind of picture script which allowed them to keep records of events, but very few examples of it now exist, and little is therefore known about it.

The Spaniards landed in Yucatan in 1527, but the Mayas put up a determined resistance. Not until 1542 did the conquistadors succeed in setting up a capital, and a further century passed before they were in complete control. Even today, village life in the area is not unlike what it was during the Mayan New Empire.

## THE AZTECS

While Mayan culture flourished in the lowlands of Guatemala and Yucatan, other civilisations were taking shape to the north and west, on the Mexican plateau. That of the Aztecs was still at its height in 1519, when Hernando Cortes landed where Veracruz now stands. The Aztecs were newcomers, having settled in the region less than two centuries earlier. They told the Spaniards about the Toltecs, who were supreme in Mexico long before them, and declared that the capital city of the Toltecs was a place called Tollan. In fairly recent years the site of this ancient city has been identified, near the modern town of Tula.

The remains found at Tula are impressive enough, but even more impressive ones have been found at Teotihuacan, some miles to the south-east. In its prime Teotihuacan covered an area of several square miles and

probably had a population of around 100,000. Its two main buildings were the Pyramid of the Sun and the Pyramid of the Moon. Both were similar in style to the Maya step-pyramids, but they were even larger. Indeed, the Pyramid of the Sun, with a base covering 640,000 square feet and rising to a height of 200 feet, was larger in volume than any pyramid in Egypt.

Perhaps the most remarkable thing of all about Teotihuacan is that it was not built by the Toltecs, but by even earlier inhabitants of Mexico, who occupied the area from about 500 B.C. until about A.D. 700, when the Toltecs arrived. While it is not certain who these early people were, it is clear that they must have been able to teach the Toltec settlers a great deal about building, and very probably about many other subjects as well. We also know that in course of time the



Toltecs came into long and close contact with the Mayas. They taught the Mayas how to work with gold and copper, and in return the Mayas doubtless gave them some valuable lessons in arithmetic, astronomy, and time-reckoning.

By the thirteenth century A.D., then, the Toltecs had reached a very high level of civilisation, and although their culture then began to decline, much of the knowledge they had accumulated lived on in Mexico. And it was not long before the Aztecs arrived to garner that knowledge and graft their own culture on to it.

Well before A.D. 1300, when the Aztecs first migrated into central and southern Mexico, they were a large tribe of nomadic hunters. For many years they moved from one part of the Mexican valley to another. Often they were attacked by the more settled inhabitants, and once even enslaved. At last, in 1325, they reached the shores of Lake Tezcuco, which stood where Mexico City now stands. According to their legend they saw there a large eagle perched on the stem of a prickly pear. Its wings were spread toward the sun and in its talons it held a serpent. Regarding the sunlit eagle as a symbol of life and power and the captured serpent as a symbol of defeated evil, the Aztecs decided that this was a good omen, inviting them to settle down on that very spot.

They started work at once, erecting light dwellings on an island in the lake and sinking piles into the surrounding shallow water to serve as foundations for a future city. In time they created artificial islands from mud and vegetable fibres, and used them for growing crops. Nature also came to their aid, for as the years passed the water-level of the lake slowly fell, so that other natural islands appeared. The Aztecs linked all these islands to one another, and to the mainland by means of causeways, leaving gaps here and there to be spanned by light bridges. In the event of an attack the bridges could be

removed. Then, on the cluster of those linked, well-protected islands rose the city of Tenochtitlan, a kind of New World Venice. Modern Mexico City is built on the dried-up lake bed, and the remains of Tenochtitlan, once the home of 60,000 citizens and centre of the Aztec Empire, are still often revealed when the ground is disturbed to lay the foundations of a new skyscraper.

Not until their numbers had gradually increased and they had given themselves time to build up a large army did they attempt to capture any considerable territory on the mainland. Then they began to attack the more civilised neighbouring tribes one by one, winning a reputation for both bravery and cruelty in the process. Next, having made themselves generally feared, they forced certain tribes to become their allies by threatening them with war if they failed to do so.

And so, by a combination of fighting and diplomacy, they gradually built up a large empire. By about sixty years before the Spaniards arrived it stretched right across central and southern Mexico, from the Atlantic to the Pacific, except for a few small areas that managed to hold on to their independence. In their early wars the Aztecs killed or enslaved their captives, but as time passed they mingled and married with the civilised people they conquered, and absorbed their culture.

The supreme head of the empire was an elected king. Early on in his reign, four of the greatest nobles of the land chose as his successor the wisest and most warlike of his brothers or nephews. The man they elected then underwent a long period of training to fit him for the throne. Next in power to the king came a number of *caciques*, or princes, each of whom governed a province, with the help of a council of nobles or elders. Also among the nobility were rich merchants, outstanding warriors, and the priests who, as in almost all early civilisations, were the most learned members of the community.



The great majority of the population were peasants, working with simple hoes to till the soil, pointed sticks to make holes for the seed, and sickles to cut the ripe grain. In addition to corn and beans they grew cacao, tomatoes, peanuts, tobacco, and potatoes – crops not yet known in the Old World. All land belonged to the community as a whole. Each family was allocated a plot more than big enough to grow all the food it needed, but if the family moved away or died out that plot was reallocated to someone else. Peasant families were obliged to grow a surplus, for harvests were taxed, and government officials made sure that they were paid in strict accordance with the tax lists sent out from the royal court at Tenochtitlan. These taxes, paid in the produce of the land, supported the court officials, military nobility, and priests.

Among the crafts practised by the women were spinning, weaving and dyeing. They also knew how to extract fibre from the agave plant and make both garments and a kind of paper from it. Among the men there were many highly skilled goldsmiths, silversmiths, and potters. Builders, including those who constructed pyramid temples, worked mainly with rubble and mortar, facing the buildings with stucco. Although money was unknown among the Aztecs, merchants travelled vast distances on foot, bartering obsidian tools, red ochre, pottery and rabbit skins for hides, feathers, amber, precious stones and metal.

The greatest stain on Aztec civilisation, and in the end its greatest weakness, was its warped religion. Although that religion had many lofty ideals, countless human sacrifices were made to most of its gods, including the Sun god and Huitzilopochtli, god of War. Often victims were obtained by making war solely to take captives. So when the Spaniards came many people of the New World, including the independent Tlaxcalans, were happy to join them and to aid them in bringing about the Aztecs' rapid downfall.

An Aztec priest carrying out a religious rite in honour of the Sun god.





## THE INCAS

Cortes did not land in Mexico until 1519. By the late summer of 1521 he and his small Spanish force, greatly helped by the Tlaxcalans, had seized Tenochtitlan and destroyed Aztec power forever. In the following year Spanish adventurers in Central America heard stories of another rich and powerful empire far to the south in Peru – the Empire of the Incas. (Strictly speaking, only the ruler of the empire was entitled to be called Inca, meaning king, but the white men also described his subjects as Incas.)

In 1528 Francisco Pizarro obtained permission from the King of Spain to conquer Peru, and by 1532 his small army had entered Cuzco, the Inca capital. This is what one of his followers wrote: "The capital of the Incas is a great city situated in a broad valley. It is divided into four different quarters, according to the points of the compass, and has more than 20,000 inhabitants. The largest and most impressive building is the fortress, constructed of such massive blocks of stone that one wonders how they could ever have been brought there. The Indians have neither carriages nor draught animals; they have no iron tools to shape the stone, nor mortar to set them in. Yet these huge masses of stone are fitted one to another so perfectly that one can scarcely insert the point of a knife in the joints."

Just as the Aztecs represented the last of a long line of civilisations in Mexico, so did the Incas in the west of South America. Archaeologists list at least four earlier cultures that flourished in the region from before the time of Christ until the coming of the Incas. They were the Chimu, Nasca, Pachacamac and Tiahuanaco. These cultures left behind the remains of many enormous stone buildings, but over the centuries those structures have been plundered over and over again, even the very stones often being taken away to provide materials for new walls and dwellings. Because of this, and because the

builders left no written records, we know little about them except that they produced excellent pottery, made tools of stone or obsidian, terraced the hills, irrigated the fields, and often lived in cities of considerable size. Much of their knowledge and many of their customs were doubtless handed down to the people who were masters of Peru when Europeans first went there.

The origins of the Incas themselves are also obscure, but we do know that by the twelfth century A.D. they had begun to subdue various tribes in the neighbourhood of Lake Titicaca (on the borders of modern Peru and Bolivia). Then, from the fourteenth century onward, their expansion became extremely rapid, and by the time the Spaniards arrived their empire stretched from Quito, almost on the equator, to Valparaiso, far south of the Tropic of Capricorn – a distance of well over 2000 miles. To the west their territory was bounded by the broad Pacific, to the east by the mighty pinnacles of the Andes.

In early times the ruler of the Incas was probably a *capac*, or chief, elected by the other chiefs or tribal leaders. But eventually one of these rulers, more ambitious than his predecessors, somehow assured that a relative was elected to succeed him. After that the office became hereditary, even though the ruler's sons made some pretence of electing the new monarch or Inca, as they now called him.

As the empire grew, the laws governing it became increasingly rigid, and the Inca came to hold absolute power. In the colossal task of administering law and justice he was helped by a large number of male relatives – sons, brothers, uncles, and nephews. These occupied all the highest positions in the army and in civil life.

In one important way the Empire of the Incas was not unlike the city-state of Sparta, for the prosperity of the state was placed far





Artist's reconstruction of an Inca village in the Andes. In the background are terraced fields and a suspension bridge. In the foreground llamas help in the task of carrying merchandise.

above the liberty and the happiness of individuals. In their teens boys had to undertake the task of tending flocks of alpaca, a species of llama kept mainly for its wool. Girls of the same age were put to work weaving cloth. Adults were classified into several groups, each group being assigned to different kinds of work; and the governing authorities laid down exactly what each citizen should do at each season of the year, what he should wear, and how many hours he must work.

Many people, of course, lived directly off the land, but others served in the army, worked on the building of roads and temples, or were employed as professional runners, carrying messages over great distances. Such people were supported out of public funds, and while they were away from home arrangements were made for others to keep their plots of land under cultivation. Heavy punishments, including imprisonment in

caverns with wild beasts, were inflicted on the idle and the negligent, but those who worked hard enjoyed considerable security. When they became old or infirm public charity ensured that they were not left to starve.

The greatest single task was tilling the soil – no easy one in the Andes, where much of the land was at heights of between nine and thirteen thousand feet above sea level. Even the steepest slopes were tendered capable of cultivation by terracing the ground and building low stone retaining walls at intervals. As with the Aztecs, each family was allocated a plot of land to work, but could never own it outright. These peasant families grew mainly maize and potatoes, and lived in modest houses, rectangular or circular in plan, with walls of stone or clay bricks. They reared guinea-pigs for meat and kept herds of alpaca for their soft wool, which the women made into fine cloth. They had no



animals suitable for riding or drawing carts, but the llama was a useful pack animal and provided skin for making clothes and shoes.

Royal decrees, enforced by local officials, kept vital work geared to the rhythm of the seasons. January was the time for spinning wool, February the time for digging the ground. In May the corn had to be harvested, in July the wells cleared, and in October the roofs of houses repaired.

The Incas, like their many civilised predecessors in western South America, were remarkable builders. Although they had no iron cutting tools, and no wheeled vehicles for transport, they were able to handle huge irregular blocks of stone and fit them together like pieces of a jig-saw puzzle without the use of mortar. So massive and strong are Inca walls that they have resisted many earthquakes over the centuries. Palaces and temples were of simple shape, with the outside smooth and unadorned, but the interiors were hung with rich tapestries and lavishly furnished with skilfully-wrought ornaments of gold.

To ensure easy communication throughout the empire, the Incas had to construct a sound system of roads. When the Spanish conquerors arrived, it was probably better than any they had seen in Europe, where the old Roman roads had long since fallen into disrepair. Two immensely long highways ran from north to south, one through the mountains and one near the coast. Both were joined by numerous short roads running east and west. Along the walls of ravines, the road was virtually cut out of the rock face; rivers were crossed by suspension

bridges made of lianas; here and there tunnels were hewn through the rock; and where the slope was particularly steep the road became a series of steps.

At intervals along the major roads there were inns for travellers and relay posts for professional runners, who could thus carry messages from one end of the empire to the other at the rate of 150 miles per day. Good roads also enabled Inca soldiers to be moved swiftly from place to place, to deal with the rebellions which frequently occurred.

In astronomy, mathematics and the keeping of records, the Incas never reached as high a level as the Mayas and Aztecs. They had observatories where they could study the movements of heavenly bodies, but they did not succeed in working out a really accurate calendar. For records and accounts they relied on a device called the *quipu* – a white cord with strings of different colours hanging from it. Each colour had a different number value, and the strings could be knotted in various ways to serve as aids to the memory. There was no Inca numeral system, and no true Inca writing.

Yet in making pottery, weaving cloth, and using dyes to produce brilliant patterns, the Incas were unsurpassed in the New World. They had also advanced furthest in metal-working, since they learned to use the hard alloy bronze as well as soft metals such as gold, silver and copper. And although human sacrifice occasionally figured in their religion it never reached the same horrifying proportions as in Mexico. Their worship was centred on one deity – the God of the Sun, whose earthly representative was the Inca.



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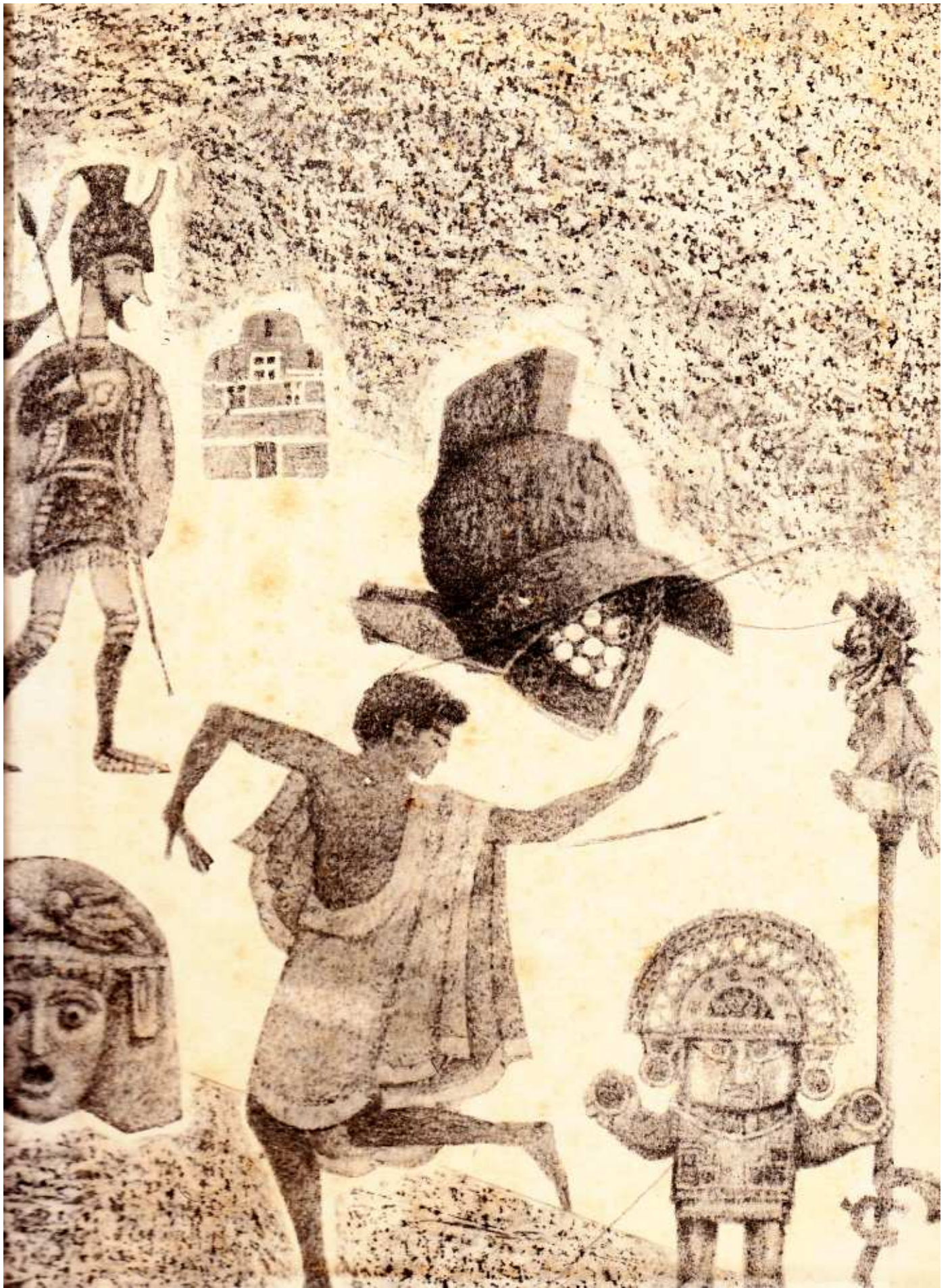
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